

ROYAL UNITED SERVICE INSTITUTION.

JUNE, 1914.

SECRETARY'S NOTES.

I.—OFFICERS JOINED.

The following officers joined the Institution during the month of May:—

Captain O. Steele, Royal Berkshire Regiment.

Lieutenant T. E. F. Penny, King's Own Yorkshire Light Infantry.

Lieut.-Colonel W. R. Walker, Indian Army.

The Council regret that more new Members are not joining the Institution, and hope that Members will use their best endeavours to obtain them, using the pink form which is in every JOURNAL for that purpose.

II.—THE CLOSING OF THE INSTITUTION FOR CLEANING.

The Institution will be closed for cleaning on Monday, August 10th, and will reopen on Monday, August 24th. The Museum, however, will be open as usual.

III.—REGIMENTAL COLOURS.

The Institution is prepared to arrange for the repairs to Regimental Colours and Cavalry Standards, in service or otherwise. Enquiries having been made as to the cost of such repairs, the Secretary begs to state that the average cost is from £4 to £5 a colour, of which the Institution only receives 10s., to cover the cost of materials, carriage, etc.

The Colours of the following regiments have been restored by the Institution since the publication of the last list in October, 1913, viz:—

12th Foot.

Royal East India Volunteers.

Highbridge Local Militia (Devon).

2nd Devon Local Militia.

2nd Durham Local Militia.

East Monmouth Local Militia.

Wiltshire (Avon and Bourne) Local Militia.

Westmorland (East and West Wards) Local Militia.

Royal West Montgomery Militia.

Sussex Local Militia.

Penrith Local Militia.

Liverpool Local Militia.

Cumberland Local Militia.

North Hereford Local Militia.

Merioneth Local Militia.

Belper Local Militia.

North Pembroke Local Militia.

Queen's Westminster Volunteers (1803).
44th Regiment.
1st British Foreign Legion.
1st British Swiss Legion.
2nd British German Legion.
3rd British German Legion.
5th British German Legion.
6th British German Legion.
Regiment unknown (previous to Union).
2nd Bn. Royal Welsh Fusiliers.
Irish Guards.
Durham Militia.

IV.—JOURNAL. (IMPORTANT.)

With the issue of the present JOURNAL, which completes Volume 58, the Council have decided that the issue will be quarterly, and it will be published in future on August 15th, November 15th, February 15th and May 15th. The JOURNAL will be of a larger size and will contain 320 pages of matter. The price to non-Members and the public will be six shillings a copy, but to Members, who may desire extra copies, the price will be three shillings.

V.—CHANGE OF RANK AND ADDRESS.

The attention of Members is called to the necessity for communicating any changes of rank or address to the Secretary. It is essential that such notification should be made in writing, and only **one** change of address can be registered each month. The 9th day of the month is the last day on which such change can be notified in order to take effect for the delivery of the JOURNAL of the current month. If such changes are not notified, Members themselves will be responsible if their JOURNALS fail to reach them through being wrongly addressed, and officers are requested to write their names, with initials, distinctly on such communications. Several signatures have recently been received which it has been impossible to decipher, and as there are many instances of Members bearing the same name and initials, it is requested, therefore, that they will add their rank. The Council beg to draw the attention of Members, who do not have the JOURNAL sent to them, and have not registered an address with the Secretary, to the fact, that they (the Council) cannot be held responsible if such Members do not receive any notices that may from time to time be sent out.

VI.—ADDITIONS TO THE MUSEUM.

(6699) Model of H.M. Brig "Raleigh," 383 tons, built at Howden Dock in 1806. The "Raleigh's" dimensions were:—Length of gun-deck, 100 feet; length of keel for tonnage, 77 feet 2½ inches; extreme breadth, 30 feet 10½ inches; breadth for tonnage, 30 feet 6½ inches; and depth in hold, 12 feet 9 inches. Her armament was fourteen 32-pounder and two 9-pounder guns, and her crew consisted of 117 officers and men. She formed a unit of Rear-Admiral Sir Richard John Strachan's blockading squadron off Rochefort in 1807-8.—Given by Miss Russell, of Pateley Bridge.

(6700) The following badges:—

Officer's Sabretasche Badge, 4th Dragoon Guards.

Officer's Undress Pouch Badge, 4th Dragoon Guards
(1854).

Officer's Glengarry Badge, Royal Inniskilling Fusiliers.

Soldier's Glengarry Badge, Royal Inniskilling Fusiliers.

Officer's Glengarry Badge, Connaught Rangers.

Officer's Embroidered Forage Cap Badge, Royal Inniskilling Fusiliers.

Officer's Embroidered Forage Cap Badge, Connaught Rangers.

Officer's Belt Buckle, 9th Foot.

Officer's Belt Buckle, Unattached.

Given by Major W. V. Jones, late 3rd Inniskilling Fusiliers.

(6701) A Midshipman's Tall Beaver Hat with the following certificate:—"I hereby certify that this Hat was worn by me on the 21st day of October, 1805, when stationed on the poop of H.M. ship "Africa" as Signal-Midshipman, in the ever memorable Battle of Trafalgar, when I was severely wounded at the close of the action by a splinter which grazed the top of my head, and a part passing through my right cheek, the effects of which caused me to be blind 9 days." Henry West, dated this day, the 21st of October, 1850.

Witness (sgd.) Geo. P. Duncan, J.P.

" " Joseph Saunders, J.P.

(NOTE.—Henry West was Master Mate of the "Africa" at Trafalgar. The Hat was made by Dunnage, and, from the Royal Arms on the maker's label, the firm must have been in existence as early as 1727).

Given by T. N. Warne, Esq.

(6702) Signal Book which belonged to Midshipman Henry West and was in his pocket at the Battle of Trafalgar. There is a record in pencil of the signals which he appears to have flown on that day.—Given by T. N. Warne, Esq.

(6703) Officer's Belt-plate, 72nd Bengal Native Infantry.

(6704) Officer's Helmet-plate of 2nd Middlesex Rifles (Militia), worn up to 1881.

(3408) Frame containing 155 buttons worn by the Royal Navy, Royal Marines, etc., from 1748 to 1900.—Deposited by Colonel C. Haggard.

The amount taken at the Museum public entrance during the month of May amounted to £39 13s. 6d.

The attention of Members is drawn to the Museum Purchase Fund.

VII.—LECTURES.

Members desiring to deliver lectures in the Theatre during the autumn session or contribute papers to the JOURNAL, are requested to submit them for perusal of the Council through the Secretary. The Council specially hope that they may receive offers of lectures on Naval subjects.

VIII.—THE CAPETOWN CATHEDRAL MEMORIAL OF THE SOUTH AFRICAN WAR, 1899—1902.

This beautiful bound volume, containing the names and regiments of all those who died in the war on behalf of the Empire, will be on view at the Institution from July 1st to the 31st, from 11 a.m. to 4 p.m. All subscribers and those interested will be admitted to see it.

PRINCIPAL ADDITIONS TO LIBRARY.

May, 1914.

- The Royals in South Africa, 1899—1902.** Edited by Lieut.-Colonel E. Makins, D.S.O., The Royal Dragoons. Crown 8vo. (Presented by the Editor, *The Eagle*. The Royal Dragoons). Potchefstroom, 1914.
- XVth (The King's) Hussars, 1759 to 1913.** By Colonel H. C. Wylly, C.B. 4to. £3 3s. (Caxton Publishing Co., Ltd.). London, 1914.
- Die Grundbedingungen Kriegerischen Erfolges.** By Lieut.-General Freiherr von Freytag-Loringhoven. 8vo. 4s. 6d. (E. S. Mittler & Sohn). Berlin, 1914.
- The Romance of the King's Navy.** By Edward Fraser. Crown 8vo. 3s. 6d. (Henry Frowde, Hodder & Stoughton). London, 1913.
- Magnetical, Meteorological, and Seismographic Observations made at the Government Observatories, Bombay and Alibagh, 1906 to 1910—with Appendices.** 4to. (Presented by the Government of India). (Government Central Press). Bombay, 1913.
- Œuvres diverses de M. de Fontenelle.** Nouvelle Edition. 3 Vols. Crown fol. (Presented by Lady Wolseley). (Gosse & Neulme). Hague, 1728—29.
- Histoire de la Guerre des Bataves et des Romains d'après César; Corneille Tacite, etc.** Redigée par le Marquis de St. Simon. Demy fol. (Presented by Lady Wolseley). n.p. 1770.
- Mainly about Discipline.** By Major R. F. Legge. 8vo. Pamphlet. 6d. (Presented by the Publishers) (Gale & Polden, Ltd.). London, 1914.
- The Fighting Fame of the King's Ships.** By Edward Fraser. Crown 8vo 6s. (Hutchinson & Co.). London, 1910.
- Les Grands Hommes de Guerre—Murat.** By Captain A. de Tarlé. Crown 8vo. 1s. 6d. (Librairie Chapelot). Paris, 1914.
- Notes on the Balkan Wars, 1912—13.** Prepared by the General Staff, War Office. Crown 8vo. (Presented by General Staff, War Office). (Harrison & Sons). London, 1914.
- Reminiscences of Waterloo.** By H. M. Leathes. Crown 8vo. (Presented by Lady Wolseley). (W. Clowes & Sons, Ltd.). London, n.d.
- Our Fighting Sea Men.** By Lionel Yexley. Crown 8vo. 6s. (Stanley Paul & Co.). London, 1911.
- A New Map of the Balkan Peninsula.** Size 22 by 28 ins. Scale 1 : 2,500,000. 5s. (Presented by the Publishers) (G. W. Bacon & Co., Ltd.). London, 1914.
- The Conduct of the Duke of Marlborough during the present War. With original papers.** 12mo. (Presented by John Wardell, Esq.). London, 1712.
- The Campaign in the Crimea—A Historical Sketch. Illustrated by Forty Plates by William Simpson.** By George Brackenbury. 8vo. (Presented by John Wardell, Esq.). (Paul & Dominic Colnaghi & Co.). London, 1855.

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THE DEFENCE OF LOCALITIES AGAINST AERIAL ATTACK.

By COLONEL LOUIS JACKSON, C.M.G., late R.E.

On Wednesday, April 22nd, 1914.

BRIG.-GENERAL D. HENDERSON, C.B., D.S.O., Director-General
of Military Aeronautics, in the Chair.

THE CHAIRMAN: Ladies and gentlemen, I have to introduce to you to-day the lecturer, Col. L. C. Jackson, whose name is no doubt known to most of you. He is an acknowledged expert on the subject of defensive fortifications, and has been recognised as such not only by the War Office but by the public in general. The subject he is going to deal with is a very interesting and a very complicated one, and I am sure we shall all derive very great benefit from the study he has given to the subject. I will now call upon Col. Jackson to deliver his Lecture.

LECTURE.

I HAVE been moved to an essay on the defence of localities against attack from the air, mainly because the public mind has been disturbed for years by a vague menace, and it is worth while to attempt to lay down in definite terms what the danger is, and what steps are necessary to guard against it.

There are two bogies that are constantly evoked by the writers of magazine articles. One is the sudden appearance of a mighty fleet of aircraft, bearing an invading army; the other, the nightmare possibilities of explosives. We are all familiar

with that tiny phial of grey powder, the invention of some Russian or German chemist, which, if dropped on the dome of St. Paul's would suffice to lay London in ruins. Such wild imaginings defeat the object with which many of them are written, because the common sense of the public rejects them, and is prejudiced to the extent of thinking the whole danger illusory.

But there is a danger, although its extent is still quite undefined; and here is at once the object and the great difficulty of my lecture, namely, to discuss the nature of protection against weapons of which we do not yet definitely know, and can only forecast, the numbers and offensive power. As regards the aerial military preparations of other countries there is no accurate information available to us. As regards our own, of course details cannot be given. I must therefore ask your indulgence if, in discussing the effectiveness of various weapons, I can give you very few facts and figures. This, however, I can say, that the state of our own preparations for aerial fighting is more satisfactory than is generally believed.

A demand is often seen in the newspapers for the "supremacy of the air." If by that is meant that whatever hostile action is possible for an enemy's aerial fleets, our own aerial fleets shall be capable of as much and more, that is a realizable ambition. But if it means such an undisputed mastery of the air as our fleets had of the sea 100 years ago; if it means that our aerial fleets shall be numerous and powerful enough to protect our shores from all insult, from any attack by aircraft, I think that is too much to ask. The wide uncharted spaces of the air can hardly, in our generation, be patrolled to such an extent.

In this connection there is also the question whether the rôle of aircraft should be defensive. As will be seen later, I must make a partial or tentative reservation for particular cases, but speaking generally, I think the action of the aerial fleets should resemble that of the navy. We do not, for instance, tie down any particular ships to assist in the defence of a fortified harbour, because it is better that they should be free to join in a concentration of force at any necessary point; and for the same reason we should not sacrifice the mobility of the new pre-eminently mobile arm.

If then, we may take it as at all events unlikely for a long time to come, that our own aerial fleets will be able to protect us from all attacks of an enemy's aircraft, it follows that we must make preparations on land in the ordinary way against such powers of offence as their weapons may possess.

Now, before I define what I mean by "localities" and discuss their defence, let us first consider the possible methods of attack. For this purpose it is necessary to look ahead somewhat. For supposing that we deal with the present day alone, it is self-evident that any measures that might be considered

adequate to existing conditions, and therefore put into execution, would be inadequate before they were completed, in view of the constant advances taking place in aircraft. At the same time we must not look too far, because we cannot foretell the precise lines along which aerial military science will be developed, and because it can hardly be denied that some measures of defence are already necessary. Although the offensive powers of aircraft are at this moment rudimentary, they are being developed day by day, and we may expect some definite advances in this direction very soon.

Does anyone doubt this? The aerial experiences of the last five years have amply proved that the record achievement of one year is an everyday feat in the next. This is natural, because the conquest of the air is now almost entirely a question of mechanical efficiency; and at this period of the world's history, the co-operation of all the arts and sciences is bringing about advance in all branches of engineering with a rapidity which would be startling if we had not become gradually accustomed to them.

What, then, is the aerial advance since 1908? Mr. Hearne in his *Aerial Warfare*, published in 1909, summarizes the maximum attainments of dirigible balloons and aeroplanes up to that time as follows:—

	Distance in miles.	Duration of flight in hours.	Speed, m.p.h.	Height attained, feet.
Dirigible balloon	360	13	30	4,500
Aeroplane	56	1 $\frac{1}{2}$	40	150

Later on he says, "Aeroplanes so far have not risen above 200 feet, but the Wrights believe that they can rise to 3,000 or even 5,000 feet."

To-day, in April, 1914, the range of a modern Zeppelin at full speed is estimated at over a thousand miles, and an aeroplane has been flown across the Mediterranean, from Frejus to Tunis.

The possible duration of flight of a dirigible is more like three days than half a day; and an aeroplane has remained longer in the air than the balloon could in 1908. The speed of dirigibles is 50 miles an hour, and we have aeroplanes that can travel at 90. A dirigible balloon recently ascended some 10,000 feet, and the height record for aeroplanes is anywhere about 20,000 feet. Scarcely a week passes without some new record being announced, and there is a continuous and steady advance in structural efficiency, in engine power, and in the number and experience of aviators.

In view of these facts we cannot but expect an equally definite and continuous advance in the immediate future; and I propose to look forward three years, to 1917, and assume that the leading nations will have arrived by that time at a certain stage

of offensive power. My reason for fixing that period is not only that it seems to allow a sufficient time for experiment and the subsequent construction of a fair number of fighting aircraft, but also that any defensive measures we may contemplate now, or at any rate most of such measures, will not be completed before two or three years have elapsed; and should, therefore, be framed with regard to the requirements of the immediate future rather than of the present.

What, therefore, are we to expect in 1917? Taking airships first, it appears from the reports of the *Times* special correspondent of last year, that both Germany and France had already built or on order, a certain number of dirigible balloons of 1913 patterns, with a lifting power of between 20 and 30 tons, and speed of from 45 to 50 miles an hour, or rather more. The earlier balloons still existing may be dismissed from consideration, both because of their inferior power, and because the life of a balloon is at present estimated at four years; though no doubt more durable vessels will gradually be evolved. If the four-year limit holds good for 1913 patterns, none of the ships built last year will be useful for war purposes in 1917; but their places will be taken by larger and swifter craft. Germany is now reported to be ordering ships of well over 30 tons lifting power, and France has apparently no intention of being left behind in the race. They are still working on experimental types, but it seems probable that there will come a limit to the development in size, if only on account of the housing question. For every airship there must be a shed, and the cost of these sheds is considerable. If the life of an airship is to be taken at four years, the cost of replacing it will be much reduced if the new airship can be housed in the old shed. There are also many other questions, besides increase of power, which have to be solved in the coming years, and owing to the time required for building an airship, experimental results are much less quickly obtained than with aeroplanes. It therefore seems likely that when a satisfactory ship is produced, with all the carrying power necessary for crew and propulsion and offensive purposes, which may perhaps be put at something under 40 tons, there will be no advance in size for some years.

Allowing, therefore, for certain moderate advances, let us assume that in 1917 France and Germany will each have fleets of some 40 or 50 airships, most of which will have a carrying power of 40 tons, and a calm weather speed of 60 miles, with a range of 1,500 miles. This, I must say, is an assumption without any definite grounds, and is based on the rate at which they are now being built, and on the hypothesis of the continued popularity of the airship. There is, of course, a strong body of opinion that the day of the airship is already past, because of the coming of the armed aeroplane. That opinion may prevail, though it is not likely to do so until the armed aeroplanes have given some demonstration of their efficiency. In any case we

may reckon on the leading nations having each a dozen or so of airships, of the patterns now being built, available in 1917. These vessels would be able to drop a ton of explosive in one charge, or a proportionate amount of light or heavy bombs. They would be armed with light Q.F. guns, or perhaps with special bomb guns. Operating at considerable heights, practically out of rifle range, though not out of gun range, they should be able, from a stationary position over the target, to drop projectiles with fair accuracy. At night, if unopposed, they could come down close to the object and drop the big charge with an excellent chance of hitting.

Turning to aeroplanes, we find that a good military machine of to-day, carrying a passenger, can travel at 75 miles an hour for about six hours without stopping. Such a machine is already very valuable for such purposes as reconnaissance, but it has no offensive power. The class of military aeroplane that we can expect to have in the near future would have a speed of not less than 75 miles an hour, a range of at least 500 miles, be armoured to resist small arm fire, and have a crew of two or three, and a machine gun. For the latter might be substituted bomb-dropping arrangements, or if the armour were omitted, a pom-pom. Judging from the progress already made, it seems more than probable that such machines will be in use by 1917.

As regards numbers, it is impossible to say what the future may bring forth. If we assume that the leading powers will be satisfied with a total of 300 or 400 machines, we shall probably be under the mark. Of these, however, the majority will be for scouting and similar purposes, and need not be armed.

The fact that a fighting aeroplane will usually engage at short range will allow of the use of a great variety of missiles: automatic rifles, pom-poms, rifle grenades, fire arrows, explosives and incendiary bombs can all be used. Fair results have been obtained with rifles, and already it is probable that a duel between two aeroplanes carrying rifles would very quickly have a definite result. The rifle grenade will be a deadly enemy to the balloon. Bombs of 100 lbs. weight and more can be safely dropped, but no very great results in accuracy have yet been attained. Practice may perhaps do something. An aeroplane is an unstable shooting platform, but so is the back of a galloping horse, and there are plenty of men who can make good shooting on horseback. The important difference between the cases of the dropped bomb and the revolver bullet is the velocity of the projectile. An aeroplane dropping a bomb may be passing over the target at the rate of 90 feet a second, and this is a serious factor when the bomb has only the velocity due to gravity. The designer of sighting apparatus has several handicaps. Neither the exact height nor the exact rate of travelling over the target can be known, and there is difficulty in getting a true vertical. There is also the question of side winds. These difficulties can be very greatly decreased by

giving an initial velocity of several hundred foot seconds to the bomb, and I expect that bomb-dropping will soon give place to bomb-shooting, and that good results will then be got.

Now if such will be the forces and the weapons possibly disposable for war, we still have to consider what use will be made of them; or, in brief, for the purposes of this lecture, whether a nation at war with us would be able to spare any aircraft from the service of the fleets and field armies for the attack of this island. We know what is a suitable proportion of guns per thousand rifles, but we do not yet know what proportion of airships or aeroplanes employed with the fleets and armies in the field would give the best results in efficiency and economy.

If we alone were fighting with one of the great Continental nations, this question would only apply to the service of the fleets, unless the enemy succeeded in effecting a landing, and until then no doubt both sides would have some aircraft to spare for offensive purposes. If we had a Continental nation allied with us, it is probable that very few aircraft could be spared from the fighting lines at sea or on shore; still the enemy might be able to provide one or two dirigibles and flights of armed aeroplanes to attack us at home, if it was thought worth while.

Let us assume for the sake of discussion that in either case there is a possibility of our being attacked from the air, and that the attack at a given point might be delivered by a dirigible, or a flight of aeroplanes, or by both acting in concert. We have also assumed that the enemy's dirigibles will have a range of 1,500 miles and his aeroplanes of 500 miles, with certain powers of offence. In connection with the question of range, we must remember that it is not necessarily essential to the enemy that his aeroplanes should be able to get home after achieving their mission. The case is slightly different with dirigibles, which the enemy would be unwilling to sacrifice except for a very important object. Another thing tends to limit the action of dirigibles. If they come over by daylight they would run a great risk of being seen and destroyed by aeroplanes. If this danger deterred them, their range outside their own country would be limited to what they could run by night: say, 400 or 500 miles.

A glance at the map will show that as far as the question of range is concerned, there will be nothing to prevent attack. And though I have spoken only of these islands, it should be remembered that we have also abroad great maritime fortresses which are easily within range of a possible enemy, and whose defence against aerial attack is of the first importance.

If all that I have assumed so far is granted, we have arrived at this point: that in about three years from now a great many of our vulnerable points will be exposed to a possible attack

from the air, and that the attack may take the form of large or small bombs, explosive or incendiary, light shells and bullets. These vulnerable points are the "localities" to be defended, and they include such fixed points as would be likely objects of attack, *e.g.*, coast batteries, dockyards, magazines and stores, ammunition factories, oil reservoirs, wireless stations, and great centres of population.

In considering the defence of these points we have to remember the three elements of defence, namely, Offence, Protection, and Concealment. One or more of these elements may be applicable in each case. The offensive defence, in the case of aircraft, lies with other aircraft or guns. Protection may be either something that is frankly bombproof, or some protective covering that will arrest the descending projectile and prevent it from exploding near enough to the object to do harm. Concealment may be complete or partial; and a form of partial concealment lies in dispersal.

Now, in the application of two of these elements we have to deal with uncertainties. First, as regards guns, we do not yet know what they can do against aircraft. Many people think they will be ineffective, on account of the uncertain height and pace of the objective. My own opinion is that with a properly designed vertical fire gun, which should be as easy for the gunner to aim and swing as a shot gun, a very good degree of efficiency will be attained. Given a high muzzle velocity, which is essential, a dirigible hovering within dropping height (say, anything less than 5,000 feet), should be an easy mark. As for aeroplanes, shooting at them will be just like game shooting, when a suitable projectile has been found. The aeroplane will hardly attempt bomb-shooting at a greater pace than 60 miles an hour—probably much less—and in exchange for his pace he has to come close down to the target, say, to 600 feet. Compare the case of the flying duck. It comes over the sportsman at about the same pace, and perhaps 50 feet up. The man does not know at exactly what pace it is travelling, nor just how high it is, but if he is a good shot he hits it; and he has about a second and a half of time in which to do it, from the time when the bird comes within range till it is over his head. The aeroplane being twelve times as high, the gunner would have 18 seconds under the same conditions, but really more, because his range is longer, and that ought to be enough for him. Two things are necessary; first a suitable projectile, having regard to the fact that the vital parts of the aeroplane will be protected; and second, constant practice. What an opportunity for specially enlisted gamekeepers!

Even if the gunner missed, he would probably cause the other man to miss. I have said that with a suitable gun, and plenty of practice, it is probable that fair results in bomb-shooting may be arrived at; but that would be against an unprotected target. It would be a very remarkable

aviator who could produce his best shooting 600 feet up in the air with bullets and splinters flying all around him.

Of course, there are difficulties for the gunner. The most absolute vigilance is required, because he must be ready and waiting behind his gun when the aeroplane comes within range. He does not know in what grey dawn, or sleepy dinner hour, or quiet twilight the enemy may come. The attack may be from any side, though he will know that with bombs the enemy would prefer to come straight up or down wind. If there is high ground close by, the aviator may seek to use it as cover, though here again he might pay for his cover by disturbance from air currents at the critical moment. In any case the gunner must be always ready, and if the gun cannot be on a commanding site there must be a look-out, and thus a double vigilance is necessary. This may be ensured at the beginning of a war, but would be difficult to keep up.

Considering everything, I believe the gun is the most effective defence against aerial attack; that it would not only tend to defeat the attack, but in most cases stave it off; but it is probably the most expensive. The actual cost of the gun may be only £1,000 or £1,200, but a crew of six men at two reliefs would cost as much as that yearly, and the cost of a large quantity of practice ammunition must be added. Again the aeroplanes would probably not come singly but in flights, so that several guns would be necessary, according to the size and importance of the object.

There is uncertainty also in connection with the element of direct protection, because we do not know what nature or size of bombs may come into use. Protection is easy enough for a small building such as a magazine, because five feet of earth will keep out any ordinary bomb, but with many buildings earth is not applicable. A bomb-proof roof is a very heavy and expensive thing. If designed to keep out a 10-lb. bomb, it might be attacked by one of 100 lb. If calculated for 100 lb., and not protected by guns, it might have to meet a still heavier bomb from a dirigible.

Netting, again, has been thought of, but its supports would be expensive, except on a very small scale. And here, again, what are we to allow for? Torpedo netting will keep out a 100-lb. bomb dropped from a considerable height, but it would probably not do so if the bomb was provided with a cutter.

Guns cannot be effectively protected unless one frankly adopts the cupola system, and that would not be worth while against aerial attack alone.

Let us now take the vulnerable points that have been mentioned, in order, and consider what seems to be the best defence for each.

COAST BATTERIES might be attacked by aircraft in co-operation with a naval attack. The attack of batteries by ships has

usually been considered rather improbable. It would be much more probable if effective help could be given by aircraft, either by putting guns out of action or by causing loss and confusion among the personnel. There is another important point. Naval guns are practically always superior to battery guns in range and weight, because they are always being brought up to date, whereas the battery guns are only renewed at long intervals. Hitherto the superiority of range has not been of much use, because at extreme ranges the effect of the fire could not be observed. With the help of observation by aircraft, however, the ships might be able to shell the batteries without any possibility of effective reply.

For the latter reason it is essential to keep the enemy's aircraft at a distance, and this must be done by guns. If the question is asked, why not defend by aeroplanes? I would reply that while there would no doubt be a patrol service of aeroplanes along important stretches of coast, it would not be well to keep numbers of them sufficient for fighting purposes immobilized at all our defended ports. The vertical fire gun is the natural weapon of self-defence for a battery, and if it can keep the enemy's aircraft at a distance the necessity for any other kind of special protection for the battery disappears.

As to the number of guns necessary, we must consider that an attack would be delivered possibly by flights of ten aeroplanes. The guns must be close to the objects they are protecting, and perhaps two for a small group of batteries would suffice. They should be placed centrally, along the highest ground available.

With DOCKYARDS we have to consider especially the danger of incendiary bombs. Really serious damage to a big dock-yard would be an object worth sacrificing a dirigible for, and as long as dirigibles are being built, the danger of this form of attack must be reckoned with.

Now, if a first-class dirigible arrived by night over a dock-yard, what could she do? If not interfered with, she could come low down and drop a really large charge of explosive on to any battleship that might be there, building or refitting. By lowering the charge with a steel cable and an electric release, she could make even more certain of her object. From a greater height she could distribute a large number of incendiary bombs over timber-yards, stores, etc., with a few explosive bombs for moral effect. The result might easily be very serious.

How is this to be prevented? Given a dirigible with the range and speed above predicated, I doubt if it would be possible, by any system of aerial patrol at night, to prevent her arrival and the commencement of the attack. If that is so, the thing would be to beat off the attack as soon as possible, but the problem is a very difficult one. The balloon must be driven away, either by vertical fire guns, aided by searchlights, or by

aeroplanes. Both could not be used together. The guns could probably prevent the balloon from coming low down. If she stayed 5,000 feet up and moved about dropping bombs, could they find her with a searchlight, and hit her? If so, that seems an easier and quicker form of defence than by aeroplanes rising to fight her.

Or should there be an organized aeroplane patrol at night? Flying is more difficult at night than in the daytime, but we are told that they are practising it in France to guard against dirigibles. Shall we lay this additional burden on our airmen? If it is asked of them they will certainly do it.

The question needs consideration, and is no doubt getting it. A dockyard is a large object to hit, and twenty simultaneous fires would overtax the resources of the fire-brigade. Direct protection is not possible. You can give a measure of protection to a ship by netting, but you cannot roof over a whole dockyard. The main point is that a dockyard is worth special and expensive measures of defence.

ARSENALS differ slightly from dockyards in the fact that there are buildings where certain explosive stores are manufactured, which are in themselves a source of danger, and the loss of which would affect our ammunition supply. Such buildings require special consideration. It is our practice to give them light roofs, to minimize the effect of an explosion from inside, but it may be necessary to depart from this practice and give them protection overhead. Steel netting would keep up the light roof principle, and might arrest or deflect a bomb, but there is a danger that the flash of the explosion would get through the light roof. Complete protection is of course heavy and expensive. If it is decided on, there are methods of getting the necessary result with the minimum of material, but it is better not to enlarge on them here. When I speak of complete protection, I do not of course allow for a one-ton bomb, which no roof would keep out: but it would perhaps be difficult for a dirigible at a good height to pick out and hit the particular building she wanted in an arsenal. Apart from these special buildings, whatever arrangements were decided on for a dockyard would apply to an arsenal.

STORES of explosives and ammunition. Those which are kept in batteries are already in bomb-proof magazines. Small local stores, not bomb-proof, are not worth aerial attack. Where, however, large reserve stores are collected together, attack may be expected. We have one or two such places, no doubt well known on the Continent. A number of stores grouped together form a large target worth attack, and not easy to miss.

I have not had the opportunity of going closely into the matter, but I believe it would be altogether too expensive and cumbersome an affair to make these stores bomb-proof, nor are they suitable for defence by guns, both because the chances

of the aviator are much increased by the size of the target, and because in out of the way spots with small personnel one cannot rely on extreme vigilance. The store sheds might be turned to other purposes, and the explosives either put under ground or dispersed in small stores with the usual earth banks round them. The latter would in most cases be the cheaper and better plan.

AMMUNITION FACTORIES.—The principal factories might be subjected to an aeroplane raid. I doubt if they would be considered suitable objects for dirigibles. They cannot well be efficiently bomb-proofed, nor can they be concealed; therefore the only suitable form of protection seems to be the provision of a gun or two. This does not seem to be at the present moment an urgent question, and it might be left for decision until the general aerial policy is further developed.

OIL RESERVOIRS.—These as they stand are very attractive targets for bomb-shooting aeroplanes. There are two sources of danger in them. First the loss of the oil, which is essential to the fleet. It will be remembered that some oil reservoirs were fired a few days ago at Tampico, by Mexican gunboats shelling the city. Second, the danger of conflagration, if the nature of the damage to the reservoir is such that the burning oil can flow out freely. Imagine a large oil reservoir near the Thames, discharging its contents in flame over the river.

It seems that to safeguard the oil, naval reservoirs must be protected. The most practical method in most cases would be to construct lined concrete tanks half under ground, using the excavated earth to cover over the tops and render them bomb-proof. I say lined tanks, because although concrete can be made waterproof, I am not sure if it can be made oil-proof.

Large oil reservoirs not belonging to the Government should be so designed that burning oil escaping from them should flow away somewhere where it could do no damage.

WIRELESS STATIONS.—These, again, would easily be destroyed by bombs. They can neither be bomb-proofed nor concealed. It remains therefore to decide in the case of each one, whether it is worth while to protect it with guns.

GREAT CENTRES OF POPULATION.—Of these, London is for us the prime object of consideration. Destruction and panic in the largest of provincial towns would cause trouble, but need not affect our national policy. London in this respect stands alone, that it is not only the habitat of a large fraction of our whole population, but the seat of Government, the centre of our financial and business systems, and the nerve centre of our military and naval forces. A serious blow aimed at London would be more effective against the national life than in any other capital of the world.

We are now, beyond doubt, face to face with the new era in war. If you have granted my assumptions with regard to

the range of action and offensive power of the aircraft of the immediate future, those assumptions must hold good for one object as well as for another.

How is London affected by them? General Delacroix, in an article in the *Daily Mail* of the 11th September last, wrote: "Even admitting that a Zeppelin were to pass over the English country side, it is not easy to see what result would be effected, for even in time of war it would not be permissible to drop explosives into unfortified towns." I have no wish to be an alarmist or to make anyone's flesh creep, but I am not prepared to accept this dictum, even from so eminent an authority.

The idea of not bombarding unfortified towns had its origin many years ago, in the time of perpetual frontier warfare in Europe; and, like most of the rather artificial conventions of that time, rested on mutual convenience. An unfortified town in those days was not of much importance one way or the other. It was not expected to offer any resistance. If it was spared bombardment, the enemy in return expected to occupy it without any trouble, and take full advantage of its conveniences for billeting, supplies, and so forth.

If a Geneva convention were sitting now, and the point were to be raised that a capital which is easily accessible to the enemy may claim exemption from attack on the ground that it is unfortified, would not the answer be "Yes, provided that it is prepared to submit, and not offer resistance to the enemy's armed forces"? And whether the armed force takes the form of troops ready to advance, or of the power to destroy resistance by attack from the air, the principle is the same. After all, war is a game that governments play to win, and we could hardly expect the most chivalrous enemy to refrain from striking a blow at the heart of the country, merely because we have chosen to leave it unprotected. Can any student of international law tell us definitely that such a thing as aerial attack on London is outside the rules; and, further, that there exists an authority by which the rules can be enforced?

No doubt it would be a very unkind thing, and would give rise to many letters in the *Times*, to cause, for instance, an extensive conflagration among the houses of peaceful citizens. But how, if many of the citizens are Territorials, and some of the buildings contain warlike stores? If a flight of aeroplanes passed over the city, each one dropping a dozen incendiary bombs in different places, would not the result be more than the fire brigade could cope with? If a Zeppelin dropped half a ton of guncotton on to the Admiralty and the War Office, as she might do if not interfered with, what would be the result, in disorganization and discouragement? What would be the effect of cutting off the water supply of the East End, or sinking food-ships in the Thames? These things seem incredible to us, who have only known of wars on the frontiers. I confess

I am reluctant to go the length of my own arguments, but if it is conceded that London is within the range of action of a hostile Zeppelin or two, and a flight of aeroplanes, such action will soon be possible; and this is the age of the "knock-out blow" in everything. Would any ruler harden his heart to such action? Who can say? The question seems to hinge on the ultimate results to be expected. If it seemed probable that such panic and riot would be caused as to force the Home Government to accept an unfavourable peace, then perhaps it might be done. For any less object the odium would perhaps not be incurred.

There is, of course, the question of the influence of London's financial relations with other countries; but if that influence did not avail to prevent war, it would not prevent the blow at the heart.

It seems to me that we cannot help accepting the fact that in three years or less London will be exposed to the form of attack I have indicated. What is the defence? In the first place, taking into account the size of London, it seems that no system of aerial patrol could prevent an attack by a dirigible balloon. A deliberate attempt to destroy a given building might perhaps be prevented; but if the balloon's gas were exploded and she fell in flames with all her cargo of explosives, the remedy might be as bad as the disease. Aeroplane attack on London is feasible, but is not so formidable nor so easy. Aeroplanes coming by day might be seen and engaged by our own patrols. As for night attack, I should think that manœuvring over London in the dark would be a dangerous task in present conditions. Perhaps some aviator will tell us if it is practicable, and if not, whether it is likely to become so. In brief, however, I do not think that any system of patrolling can entirely prevent aircraft from reaching London, and doing damage when they get there. The only practical way of meeting this danger is to provide enough of our own aircraft to make it at least difficult and chancy for the enemy's craft to get through, and to be able to undertake a vigorous offensive. If no measures of actual defence can protect our capital with certainty from a dangerous attack, then the remedy must be found in offence. Armed aeroplanes are the natural balloon destroyers, and I think they should be provided in sufficient numbers to hunt their quarry out of existence.

Other centres of population and manufacture are not, I think, likely to be attacked.

Now, to sum up, I think we may say that the defence of objectives of small area, such as batteries and stores, against aerial attack, is easy, though it will cost some money. The defence of those of large area, and especially of the capital, cannot be relied on except by an active offensive. As regards London, there will be very many who will think that I have overstated the case. Some will say that such forms of attack as I have indicated would be ineffective in any case, and they

will point to the bombardment of Paris in 1870. I have until recently always been inclined to that view myself, and of course as a fortification engineer I have always held that mere bombardment, however severe, was no justification for the surrender of a fortified place. But the evolution of missiles of war has gone a very, very long way since 1870; and the case of London, with its enormous population and its concentration of various interests, is different from that of an ordinary fortified town. Hostile action against it would not have much direct effect on our operations of war, but I do not believe that anyone can assign a limit, high or low, to what the indirect effect might be.

Another school will take me severely to task for accepting such a possibility as the use in the twentieth century of incendiary projectiles against an unfortified town. I may be quite wrong; I can only say that if I were responsible for the defence of the country, and knew that a possible enemy had such a weapon to his hand, I should take account of it. The possible danger is there; the safeguard against it—it cannot be too often repeated—is offensive action.

When we consider the effective powers of the dirigible balloon together with the difficulty of warding off its attack, we must allow that there have been few more potent instruments of destruction known to history. On the other hand, of all the weapons of war ever devised by man, this is by far the most fragile and most vulnerable. I believe that whatever the future of the dirigible may be for all the uses of peace, in a few years time no one will think of employing it for war. Still, for the moment, there it is, and it must be provided for.

It is satisfactory to think that, for such action as may be necessary, we have the right human material. The men who are striving for the mastery of the air now are of the same adventurous type as those who, a century or two ago, mainly for sheer love of danger, spent their lives as professional soldiers on the battle-grounds of Europe. Those ancestors of ours were happy in this, that if their lives were often cut short, they had at least lived them to the full. But what makes the airmen a class apart, and entitles them to our admiration and regard, is that at a period when an exaggerated value is placed on human life, they incur from day to day, in time of peace, the risks of active service, without the excitement and the possible rewards of war.

The air service of the future will call for the very highest qualities of nerve, gallantry and self-devotion; and when the call is made, the men who inherit the traditions of the Royal Navy, and those who keep the Marches of the Empire, will respond.

[During the lecture, the trajectories of bombs and various forms of protection were illustrated on the black board].

DISCUSSION.

Major-General H. Arbuthnot, C.B.: Ladies and gentlemen, I had no wish to open the discussion, because I am sure there are many gentlemen here who are far more able to speak on the very interesting lecture we have heard than I am. The lecturer has referred so much to what guns can do in the defence of vulnerable points that I, as a gunner, feel bound to say a few words on that point. Speaking subject to correction by General Henderson, if I am wrong, I do not think we have any gun which can be relied upon to fire vertically to any great height with any degree of certainty. In that respect the Germans are far ahead of us. It is the nature of the German nation when they take up a thing to go most thoroughly into it. They have now got guns of every description—armoured guns like the armoured trains we had in the Boer War; guns mounted on motors which can run along the roads to any place where they are wanted; and they have guns in position, at certain places such as Col. Jackson described, for defensive purposes. But there has been no opportunity of trying what those guns can really do, because you cannot send an aeroplane or an airship up into the air for the sole purpose of being shot at from down below. Although we have several brave and gallant airmen, I do not think they would deliberately go up to be shot at. So that really we have had no experience up to now of what a gun can do when it is fired at an airship or an aeroplane. An airship is a large mark, and if it comes low enough it could be hit, but it is not likely to come down low enough to get into the range of artillery. An airship can stand perfectly stationary. If it gets above the object on which it wants to drop the bomb, unless there is a very strong wind, that bomb can be dropped with a pretty fair degree of accuracy, as has been shown in the experiments that have been carried out in France and Germany. There is no doubt that an airship would be able to drop a bomb on to a large mark from a height which would be above the range of artillery. Of course I am only talking now of the artillery we have to-day; I do not know what may be invented by the year 1917. My own idea is that the real defence against an attack of airships is by aeroplanes. There are only certain places abroad where an airship can start from, and we can pretty well tell by scouting whether that airship is coming across to this country or not. If an airship started from Heligoland, which is the great dépôt in Germany for airships, and is only 500 miles straight across to Dublin—I do not think Dublin is more than 500 miles from Heligoland in a straight line—and as 250 miles is a very short flight for an aeroplane in these days, the airship could easily be attacked by aeroplanes en route. Aeroplanes can now stay in the air very much longer than they did a few years ago, and what they will do in three years' time goodness only knows. Air navigation is still in its infancy, and I think we shall see a very great development chiefly in aeroplanes and in seaplanes in the near future. Col. Jackson never mentioned the word "seaplane" in his lecture. To defend a dockyard or port the Navy, I take it, will undertake their fair share of the defence, and will utilise seaplanes for that purpose. A seaplane can perform scouting duties, and can defend anything which is likely to be attacked or brought against it in the shape of seaplanes from the other side. Then Col. Jackson referred to an attack on London. I gather it would be very difficult to guard against an attack on London by either aeroplanes or airships. London is such a vast area that it would be very difficult to know the exact spot where an enemy's aircraft was going to do its mischief. The lecturer instanced the case of

dropping bombs on the Admiralty or the War Office, and said the results might be very serious. Whilst he was making that remark I watched General Henderson's countenance, but there was no sign of fear on it of a bomb dropping into his office; and I think both Mr. Churchill and our Secretary of State for War may rest pretty safe in their beds. I do not think the enemy will drop a bomb on either the War Office or the Admiralty, because as long as we have a system of wireless telegraphy, until it is destroyed it will give timely information of the possibility of such an occurrence so that something may be done to save them from such a serious attack. One other point which Col. Jackson did not refer to in the least was the difficulty of seeing aircraft in the dark, but if you do not see them you can hear them. I am looking forward with very great interest to the trials that are going to take place next month of aerial engines, because the favourite engine at the present time, as you all know, is the Gnome. It is such a noisy engine that both by night and day you would hear it long before you saw the aircraft which it was driving, and that alone would give a timely warning to the place likely to be attacked. No doubt one of the great developments of aircraft in the future will be an improvement in aerial engines. They are not what they ought to be or what they will be, and we shall find before long that a silent engine will be introduced which will prevent an aeroplane being heard even if it cannot be seen. You can hear an aeroplane in foggy or misty weather although you cannot see it, but you pretty well know in what direction it is flying. I do not think I have anything more to say in reference to the paper. It has been an extremely interesting one, and the lecturer has given us much to think about as to what the future of this science will be. I am myself deeply interested in aviation, and I take the very greatest interest in any development which is likely to occur. I should like to say again how extremely obliged I am to the lecturer for the great amount of information he has given to us all.

Major-General C. Barter, C.V.O., C.B.: Col. Jackson in his very interesting lecture has referred to the question of aircraft attacking particular localities, and it would also be of interest if he could give us some information about the action of aircraft in military operations in the field. We all know the revolution, almost, in warfare, that has been created by reconnaissance with aircraft, either by itself or in conjunction with cavalry. We know that in the next war a great fight in the air will take place, and that enormous advantage will accrue to the side which obtains command of the air. There is one point that I have not yet seen considered, and that is the effect of aircraft on the vital points of communication of the adversary's armies. We all know that nowadays, owing to the great size of armies, which prevents them living on the country to a great extent as they used to do; owing to the enormous amount of ammunition consumed by modern weapons, especially artillery, and to the great length of the lines of communication, these are especially sensitive to attack from a hostile force. Of late years a great deal of importance has been attached to this question by prominent foreign writers, amongst others Bernhardt and Bonnal, who believe in the possibility and probability of great cavalry raids being made at the beginning of war; some of them think that they will take place on the actual outbreak of war. They reciprocally believe that these large cavalry forces will be launched against their communications at the outbreak of war; some are of opinion that the same operation will be attempted in a later stage of the war. But at whatever

time they may occur, these enterprises against the communications will assume greater value and more importance than they have hitherto done, and it becomes a question whether, in view of the enormous strides that have been made in aeronautics of late, cavalry in these very important undertakings will not be altogether supplanted by aircraft, especially on the side which has secured command of the air. I personally would be very glad to have any information as to the value of aircraft generally, of different types, in carrying out these undertakings. We have been informed in the lecture that the difficulties connected with aeroplanes lie largely in the fact that they can work only by day, and that as they can drop destructive missiles only from a great height they are therefore inaccurate, and will not be adapted to action against small objects, such as guardhouses, blockhouses on the line of railway, or bridges. Therefore it is to be assumed that the most destructive effect will be produced by night excursions made by dirigibles. They can travel, as we know, 500 miles; they can carry 30 tons, mostly, if necessary, explosives, and it would be interesting to learn whether it will be possible for the army carrying out this enterprise by night with dirigibles to effect sufficiently good reconnaissance by day to allow them to hit off the point close to the place at which they want to effect destruction—whether they can effect that reconnaissance successfully, and whether by night in an unknown country they will be able to descend and to land raiding parties close to a point, say a bridge, that is going to be attacked with explosives, or to pass sufficiently close over the bridge in order to drop a large amount of explosive on to that object. In connection with that point I should like to refer to a matter which has not been mentioned, and that is what the effect would be on a dirigible itself which was passing close over an attacked place, by the explosion of a ton of high explosives. Would the explosion be so great as to interfere with the stability of the airship itself or to injure it in any way? That, I think, will be an important point in considering the question that at night the airship must pass exceedingly close to the object attacked.

Lieut. J. N. Fletcher (Royal Flying Corps): There are one or two points in connection with the technical aspect of airships which have been referred to in the lecture that I should like to mention. Col. Jackson asked the question, I think, whether it would be possible with airships to fly at lower heights in cities like London. We have flown very low in London. The air is very disturbed, but it is quite possible to do so, and at night I think there would be no trouble in either free ballooning or sending dirigible airships over the Tower. The last speaker asked a question about reconnaissance by day for night work. That is purely a matter of training. We can do that, and have done similar bits of work in the past year or so in ordinary training at home. Then a question was asked about what would be the effect of dropping a ton of explosives from an airship. If you drop a ton of explosives from an airship it begins to go up at once very fast, and by the time the explosive hits the ground, say 5 or 10 seconds, you would be travelling upwards at such a pace that the little extra jump given by the explosion probably will not hurt you at all. You must also bear in mind that when you drop the explosive it is quite possible that you will not have your engines on, so that it will not affect your stability; the airship will probably drift over the object it wants to hit. With regard to the question of hunting out an airship, you must bear in mind that if you have a large number of fast armed aeroplanes they must more or less be concentrated in definite places, which will naturally be known to your

enemies; therefore the airship will have a certain chance of slipping in between those spots. It is not quite easy to go and watch an airship, say, at Heligoland, because not only to the airship of the future, but also to the airship of to-day, 500 miles is a very short distance, and when war is likely to occur it would be worth while for the airship to leave Heligoland some hours or perhaps even a day—24 hours—before she wants to do her job, to go out to some rendezvous in the North Sea and wait there for a suitable time. Then I practically defy an aeroplane to find her, because if an aeroplane goes and watches the shed it can be pushed out by the German aeroplanes, so that the two things balance one another. Then there is another point referred to by one of the speakers to which I should like to refer, namely, that we can make the airship engines quite silent anyhow for short distances; you can have an absolutely silent drive; you need have nothing but the whistle of the propeller, which at critical moments would be gently run, so that at a distance of a mile at the outside you could not hear it. I cannot quite agree with what the lecturer said about the future of airships. I believe it is generally acknowledged that the airship will always be the long distance aircraft, and it will have a great advantage over the aeroplane in carrying heavy loads, such as guns, explosives and men; and while that is so I think you are bound to keep to the airship. You must remember that airships are not yet at all matured, while aeroplanes are almost standardised now, and without some considerable and revolutionary discovery you are not likely to get much more progress except in small points. The airship, on the other hand, is not at all matured; it is not standardised, and there are a large number of designs that are simply waiting the necessary capital to be exploited, and many of them are very revolutionary indeed.

Dr. Miller Maguire: As a civilian I would like to say two or three things which concern the people of this country with regard to this interesting subject—people who certainly will never operate in the air, but whose interest will be very considerably affected if one-tenth that is mentioned in the lecture is true. Col. Jackson and every other officer who has spoken about the subject in this room during the last few years, has proved very clearly that we are now living in a new era. The fact that we are discussing these things so coolly and deliberately shows in itself that we are in a new era, and that new era appears to be a very awful one indeed. The greater the interest we Britons have in the subject, the more we should secure ourselves against being taken unawares by what may happen in such an era. It does not appear from the size of the audience to-day that the people of London realise the terrible nature of the responsibility which will devolve upon them when that time comes. Therefore I think we are very much obliged indeed to you, Sir, for devoting so much of your brains and your leisure to this subject, and to a gentleman like Colonel Jackson for calling attention to the fact that at any moment we may have to defend our localities against attacks involving these terrors which he abstained from stating, but which we can realize in imagination. I wish to thank the lecturer for bringing us back to the object of this Institution, which is to throw every conceivable form of contempt and scorn on any such anti-English persons or pacifist persons, or any other humanitarian sophists that would put us off our guard, especially if it be true, too true, that these dangers are near to us. I should like to congratulate the young gentleman who has just spoken, who is a member of the Flying Corps. In the few years since this question of flying has been thoroughly studied and practised, a number of gallant officers, my personal

friends, have met violent and terrible deaths—more terrible than we civilians can conceive. I would like therefore as a civilian to thank him exceedingly, and impress upon the Government and the War Office, and on the persons entrusted with our future, if they realize their responsibility, this passage on page 14 of the lecture. This passage, Sir, should be written in letters of gold on the buttress of the War Office. "But what makes the airmen a class apart, and entitles them to our admiration and regard, is that at a period when an exaggerated value is placed on human life, they incur from day to day, in time of peace, the risks of active service, without the excitement and the possible rewards of war." Surely a significant and pregnant passage. But why do they not at present get the rewards of war; why are their services not recognized in that way, and I suggest that they should be. We have to remember that we may be at war any day. Peace and universal goodwill were preached here a few weeks ago, yet Vera Cruz has been taken by bombardment, and we may be at war at any time. The gentleman in speaking about permanent fortifications said they were nearly always used about a century too late. I do not think that is so. Fortifications, for example, like Strassburg may have been a little late in the year 1870, and so were many others by Vauban and others, but not so Metz and Paris. Plevna and Richmond were improvised; but were very important and historic. However, I have no title to make a lengthy speech in regard to these matters. I simply wanted to point out that there is no cant in the lecture. The lecturer has recognized our responsibilities. He points out what the Government ought to do. A number of interesting things are mentioned on page 13, but as I have no technical knowledge I cannot discuss them. All I wish to say is that I do not want to be blown up either by an aeroplane or a dirigible. I do not care as a civilian which destroys us provided we and our families are blown to pieces! But we want to assist the chairman and lecturer to save us from such a catastrophe. We want to secure ourselves and our children as much as possible, and to insist on paid officials and M.P.'s doing their duty to "airmen," and therefore I venture heartily to support the lecturer in pressing upon the Government the fact that more money should be voted for this object. We have had plenty of men of the right kind—men who have died almost daily in the country's cause. Why then do not we get command of the air? Can we get command of the air? Have we money enough to get command of the air? Then why have not we got command of the air? It is only either because we do not believe what the lecturer says or because we are not prepared to supply the money that is required. Personally I will not enter into metaphysical subtleties about aeroplanes or dirigibles; I would get both, and instead of grudging every penny for the support of the gallant officers I would willingly vote it lavishly to them, because they are safeguarding the country in every possible way. If anything that has been said to-day tends to a competent offensive policy, which is the only true defensive policy, supporting the views of Col. Jackson, and your practice, Sir, our meeting will not have been in vain. I heartily thank the Colonel for having given us an extremely valuable lecture of an almost absorbing and sublime character, warning the people who elect Governments, and the Governments who rule voters, to be prepared in time for the danger that awaits us and ensure not only safety but greatness for our posterity.

Major-General R. M. Ruck, C.B.: I feel somewhat diffident in speaking to-day, because I so thoroughly agree with the lecturer in almost

everything he said, but there are a few remarks I should like to make. In the first place, I think all those who have been specially interested in this subject of late years will very gladly welcome this lecture by an officer who is a well-known authority on defence matters generally, and has that special knowledge that is so very essential to an understanding of war in the air. He has delivered an excellent and very suggestive lecture—and the arguments have very rightly been limited to the possibilities of what will occur during the next three years. As regards the question of the supremacy of the air, I quite agree with Colonel Jackson that I do not think it is possible for us to obtain anything like the supremacy of the air in the way that is generally understood in connection with the Navy. We started a good deal behind time, and we shall never reach that position which I think we ought to have held; but I think it is quite possible that, with the help of our probable allies, we may be able to obtain sufficient supremacy for practical war purposes. It has now become a stern chase, and I have nothing but admiration for the way in which both the authorities and the flying corps, the naval and military, have tackled the subject and the great work they have done in the last two years. I agree generally that the rôle of aircraft is very similar to that of the Navy, that it is pre-eminently one of attack. I think all the speakers this afternoon have agreed in that view. The principal defence of all localities, especially London, consists no doubt in the attack of the enemy wherever he may be found. But at the same time we must not put all our strength in the first line; it is necessary we should have a certain strength of aircraft, not perhaps in every locality, but in central positions where they can be readily detached to hunt the enemy off when he makes an attack. There is no doubt that dispositions have been made for this very purpose, and I am sure General Henderson could a tale unfold, if he liked, showing exactly what we could do in time of war. It is, I am sure, a great deal more than people generally credit, but I do not think we can naturally expect him to gratify our curiosity in this respect. As regards the respective merits of airships and aeroplanes, we have had a great deal of discussion on that very point. Several lectures have been delivered, both in this Institution and at the Aeronautical Society, and I am by no means prepared to accept the view that the airship is becoming obsolete. It is very superior to aeroplanes for gun fire; it has a steady platform, can carry a large crew, and formidable armament; and it is especially useful at night. These reasons will, I think, tend to make the airship useful for a long time to come, not only for offensive purposes, including bomb dropping, but also for observation purposes. We must also remember, as the lecturer has said, that the airship will probably be accompanied by a considerable number of aeroplanes to drive off the enemy's aeroplanes. I am glad to see that Col. Jackson treats bomb-dropping seriously, because some people talk about this method of attack in a very light-hearted manner. Under favourable conditions I cannot help thinking that this constitutes a very formidable method of attack. Col. Jackson gave in his lecture a list of vulnerable places and positions that could be attacked by aircraft. There are others that he did not mention, to which I do not propose to refer, which are almost more important—at least that is my opinion; but anyhow he said quite enough to make us view such attacks very seriously. Dealing with the question of defence against localities, as I said before, the primary defence is the attack of the enemy; but we must have some local form of defence, and it is a question whether it should be by aircraft or by guns. I do not quite understand what Col. Jackson's views are as regards gun defence. In certain paragraphs of the

paper he says that they will be extremely useful; in other paragraphs I am not sure that he says quite so much. In one paragraph, however, he summed the question up very clearly where he says that for strictly local defence, where the area to be protected is a small one, guns will be very useful. I quite concur with him there, but for large areas I think efficient gun defence is impossible, and I know at all our previous discussions we were agreed that the proper defence against aircraft is by aircraft. I do not think anybody could have put the arguments against guns stronger than Col. Jackson did in some of his sentences. I recollect somewhat similar arguments in old days as regards torpedo boat attack, the question of the weather conditions plays an important part, also incessant vigilance. Col. Jackson put that admirably. In my opinion it is the question of vigilance which is so extraordinarily important. A large number of men have to be kept always on watch, and there is the impossibility of getting the guns trained and fired in time before the airship has vanished, not to mention the difficulty of picking up the airships with electric lights. In certain conditions of the atmosphere you may say that it would be impossible to attack, but there is the condition of atmosphere betwixt and between, when an attack is possible but it is very hard to defend. There is another point I do not think the lecturer mentioned, and that is that guns must be a holy horror to one's own friends in a crowded locality, because if you shoot up in the air you do not know where your shots will come down! I quite agree with what the lecturer said as regards the attack on London. I think that would only be a natural thing for an enemy to do if he thought sufficient would be gained by it. Col. Jackson gave a certain number of places that might be attacked in London, and there are many more, for instance, the Docks and Shipping. Everybody would naturally attack the London Docks and Shipping if they could cripple supplies. Then there is the question of great conflagrations; that might be a very sound thing from a military point of view for an enemy to carry out if he was able to do so. Another point the lecturer did not mention was the question of attacks on railway stations. During war there would be great movements of troops, and those troops would be concentrated very often at our railway stations. There would be a considerable amount of rolling stock there, which would be very open to attack, and I am sure the enemy would be perfectly justified in attacking our railway stations under those conditions. Then the lecturer alluded to the possibility of damage to our public buildings. I think a partial demolition of Whitehall might do a great deal to interfere with satisfactory mobilization. The old critics of the War Office used to say that the orders of our possible enemies were to do as much destruction to London as they could—to blow it to blazes if possible, but to spare the War Office. We have changed all that, and I think we now thoroughly appreciate what the War Office does in the way of arrangements for war and the conduct of war. Finally I want to thoroughly associate myself with the remarks that Col. Jackson made on the question of the right kind of material which we have got in our air corps. In all my long experience of the War Office no such progress has ever been made in any branch of the Service as in the case of the Flying Service during the last two years. I am sure the Institution are to be congratulated on the fact that they have got the head of the Military Flying Service, the man who is responsible for the whole efficiency of this Service, in the Chair this afternoon, and I think it shows a very progressive policy on the part of the War Office. I am sure we have every confidence in General Henderson and his gallant corps.

Col. L. C. Jackson, in reply, said: I am sorry to find that General Arbuthnot was not entirely in agreement as to the possibilities of guns in the way of defence. He said there would be no opportunity of finding out what guns can do; but just in the same way as a torpedo boat can tow a target for battery guns to fire at, so it can tow a kite, or a balloon or even an aeroplane can tow a target under certain conditions. As to the omission of seaplanes from my remarks, when I talked of aeroplanes in a somewhat casual way I meant to include hydroplanes. We know that most of the naval hydroplanes can detach their boats and become available for use on shore, just like an ordinary aeroplane. As regards the question of hearing a balloon over London; of course you would hear it if it had not got any silencers, but if not visible it could not be effectively attacked. General Barter raised the question of the use of aircraft in military operations in the field. That is unfortunately outside the limits of my subject, and it would be impossible for me to attempt to deal with it now. Then I think he took the point that dirigibles were necessary because they could make raids by night and aeroplanes could not. No doubt night work is more difficult for aeroplanes, though it will be less so as engines become more reliable. On emergency I suppose they would be used in the dark now. The effect of dropping a heavy charge from a balloon has been explained by Lieut. Fletcher, who said he was a believer in the airship. He said you must concentrate your aeroplanes in certain places, and therefore there will be places where the airship will get through. If you confine yourself to defence, no doubt the airship will get through. He thinks the airship is not yet dead, and he was confirmed to some extent by what General Ruck said. My point is that airships are extremely vulnerable things, whether in the air or in their sheds. When war is declared they would be sought out and destroyed, and I do not think there would be many airships left after a short period of hostilities. We may be perfectly certain that if we give our officers the necessary weapons they will use them, and that is why I think the airship will not last very long in war. Dr. Miller Maguire was very kind to me. Perhaps his anxiety was not so real as he would have us believe, but I am much obliged to him for the benefit of his eloquence in helping the idea that we must have all the forces we can to provide against this danger. I am not here to attack the Government, either the Admiralty or the War Office or anybody else. I believe that the War Office and the Admiralty are doing everything they can; and while we recognise that there are certain dangers which no amount of vigilance on our part can ever entirely ward off, yet at the same time we can congratulate ourselves on the fact that what is being done is being extremely well done, and that we can have every confidence in what they are doing. I thank you very much for the kind reception you have given to my paper.

The Chairman: Ladies and gentlemen, this has been a most interesting Lecture, and I think we have had a very enlightening discussion on a subject which has not hitherto received very much public attention. There can be no doubt that Col. Jackson is quite right in stating that the advance of aeronautics has materially altered the position of the United Kingdom in the event of a European War. These islands are now within range of both dirigibles and aeroplanes, and it is the duty of those in authority in this country now to devise means of defence against these new weapons. There is apt to be sometimes a little misunderstanding about terms, and the term "supremacy of the air" has been used more than once to-day. If "supremacy of the air" means that we should be

as strong, or stronger, than any other Power in the air, then if the nation desires it there is no reason why we should not be so. We may have lost ground at the beginning, but we can certainly make it up now if it is required. But if it is to be imagined that the supremacy of the air is going to be anything like the command of the sea, then it is not. In the air we are working with three dimensions; on the sea you have only two dimensions. You cannot by any system of patrolling protect your coasts. When you consider the altitude at which aeroplanes, especially, can move, the speed at which they move, and the extent of our coasts, there is to my mind no possible method of patrolling that will make certain of intercepting a hostile aeroplane or even a hostile airship. It would seem that what we require is a development of the internal means of communication in this country, both military and civil, and very complete arrangements for a concentration of our aerial forces in order to intercept any hostile aircraft that may be discovered. These arrangements will certainly take time, but they are receiving attention. I am inclined to think that the Lecturer has taken a very moderate view of the possible advance of aeronautics in the next few years. He has safeguarded himself, however, by taking also a very moderate view of the advance of anti-aircraft guns. I cannot tell you very much about anti-aircraft guns. General Arbuthnot has said that he thought an airship would not come down low enough to get within range of anti-aircraft guns. At this present moment there is no airship that exists that could go high enough to get out of range of the anti-aircraft guns we have already got. I am inclined to think that by day an airship will not have a dog's chance against a gun from the ground. By night of course it has many chances. On a clear night it is possible that an airship may be seen, outlined against the stars or in moonlight. On a cloudy or misty night it must come very low to effect its object. But with all these disadvantages, the airship by night is a very serious proposition and it will have to be dealt with by more means than one.

I think perhaps I must disagree with the Lecturer and some of the speakers as to the prospect of the bombardment of undefended towns by aircraft. I think it is necessary to draw a distinction between the occupation of an undefended town and its wanton destruction. To sail airships over London and drop bombs here and there would be quite opposed to the ethics of warfare as we at present understand them. Of course an enemy might do it if he thought that the damage to be done was worth the risk and worth the odium to be incurred. There are also, of course, people who would disagree as to the amount of damage that is likely to be done, and would say possibly that this country might survive the destruction of the Admiralty, or the War Office, or even the House of Commons. You will always find differences of opinion as to what would occur in the event of the destruction of these national institutions. In a discussion of this kind the Lecturer is always very much hampered by the necessity of keeping secret the arrangements made for home defence. In this age of advertising it is customary among a certain class of people to believe that what is not talked about does not exist. Long ago Solomon said that even a fool, when he holdeth his peace, is counted wise; but I think if he lived nowadays he would more probably say that even a wise man, if he keepeth his mouth shut, is very likely to be taken for a fool. There are people who will not believe that any arrangements are being made for their safety unless somebody gets up and details the whole of the arrangements to them and to our enemies at the same time, which would evidently be a most foolish proceeding. Col. Jackson has

pointed out many dangers that we are now subject to, and has given some hints as to the methods by which those dangers can be met. All the dangers that he pointed out have been the subject of very grave consideration, which will be extended doubtless to others as they arise, but what the result of the consideration is I do not think any of you will be told. I have to ask you to give a very hearty vote of thanks to Col. Jackson for his most interesting lecture, which I am sure we have all enjoyed very much.

The resolution of thanks was carried by acclamation; and a vote of thanks having been accorded, on the motion of Major-General Barter, to the Chairman for presiding, the Meeting terminated.

ATTACK FROM THE AIR.

THE ENFORCEMENT OF INTERNATIONAL LAW.

To the Editor of "The Times."

SIR,—In his interesting and important address at the Royal United Service Institution Colonel Jackson inquired: "Can any student of international law tell us definitely that such a thing as aerial attack on London is outside the rules; and, further, that there exists an authority by which the rules can be enforced?" As one of the students to whom the Colonel appeals I should be glad to be allowed to reply to the first of his questions.

The "Geneva Convention" mentioned in the address has, of course, no bearing upon aerial dangers. The answer to the question is contained in the, now generally ratified, Hague Convention, No. IV. of 1907. Article 25 of the regulations annexed to this Convention runs as follows:—"It is forbidden to attack or to bombard, *by any means whatever (par quelque moyen que ce soit)*, towns, villages, habitations, or buildings which are not defended." It clearly appears from the "Actes de la Conference," *e.g.t.i.*, pp. 106, 109, that the words which I have italicized were inserted in the article, deliberately and after considerable discussion, in order to render illegal any attack from the air upon undefended localities; among which I conceive that London would unquestionably be included.

I cannot venture to ask the hospitality of your columns for an adequate discussion of the gallant officer's second question, as to the binding force attributable to international law. Upon this I may, however, perhaps venture to refer him to some brief remarks, addressed to you a good many years ago, and now to be found at pp. 101 and 115 of the new edition of my "Letters to *The Times* upon War and Neutrality (1881-1913)."

I am, Sir, your obedient servant,

Oxford, April 24.

T. E. HOLLAND.

THE HYPOTHETICAL CASE OF LONDON.

To the Editor of "The Times."

SIR,—I am much indebted to Professor Holland for his courteous note on this subject in *The Times* of the 27th inst.

This distinguished authority tells us that by Article 25 of the Regulations annexed to The Hague Convention, No. IV. of 1907, "It is forbidden to attack . . . by any means whatever, towns, &c., which are not defended"; and that this was intended to render illegal any attack from the air upon undefended localities, among which, in his opinion, London would be included.

Under this Article, however, London would only be safeguarded from attack if "not defended." A definition seems to be required. There is no mention of fortifications, which are concrete facts. When is a town "not defended"? I presume when it submits, without any opposition, to the authority of the enemy. A fortified town might not be defended; in that case it would not be bombarded, but the enemy would take peaceful possession. An unfortified town might offer a strenuous resistance, in which case it might suffer severely. Is it conceivable that London, if attacked, would not be defended?

In order to arrive at the true value of the Hague Convention as a protection for London, I will put an extreme case. The commander of an enemy's war-balloon might arrive over London, if unopposed, and signal, as a matter of courtesy, "I am going to drop explosives." We answer, "You must not drop explosives; we are not defended." The commander replies, as it seems to me, quite logically, "Then you surrender. Good. You will now obey orders."

I have no wish to be an alarmist, because I am not alarmed as to the future. In touching on this question in my lecture at the Royal United Service Institution I merely wished to draw attention to a coming source of danger. London has hitherto been supposed to be protected from attack by our fleets and armies. The new factor in warfare will shortly make a direct attack on London possible within a few hours of the declaration of war. The Hague Convention, as worded, does not appear to provide an adequate safeguard.

As regards the "binding force attributable to international law," I will gladly avail myself of the reference which Professor Holland has been good enough to give to his "Letters to *The Times*." May I, however, venture to say that no law can be very effective without force behind it, and that we do not yet appear to be approaching the era of international police?

I am, Sir, your obedient servant,

London, April 28.

LOUIS JACKSON, Colonel.

THE RULES OF INTERNATIONAL LAW.

To the Editor of "*The Times*."

SIR,—In reply to Colonel Jackson's inquiry as to any rule of international law bearing upon aerial attack upon London, I referred him to the, now generally accepted, prohibition of the "bombardment, *by any means whatever*, of towns, &c., which are not defended." This rule has been growing into its present form ever since the Brussels Conference of 1874. The words italicized were added to it in 1907, to show that it applies to the action of *aéronefs* as well as to that of land batteries. It clearly prohibits any wanton bombardment, undertaken with no distinctly military object in view, and the prohibition is much more sweeping, for reasons not far to seek, than that imposed by Convention No. IX. of 1907 upon the treatment of coast towns by hostile fleets.

So far, good; but further questions arise, as to which no diplomatically authoritative answers are as yet available; and I, for one, am not wise above that which is written. One asks, for instance, what places are *prima facie* "undefended." Can a "great centre of population" claim this character, although it contains barracks, stores, and bodies of troops? For the affirmative I can vouch only the authority of the Institut

de Droit International, which in 1896, in the course of the discussion of a draft prepared by General Den Beer Pourtugael and myself, adopted a statement to that effect. A different view seems to be taken in the German "Kriegsbrauch," p. 22. One also asks:—Under what circumstances does a place, *prima facie*, "undefended," cease to possess that character? Doubtless so soon as access to it is forcibly denied to the land forces of the enemy; hardly, to borrow an illustration from Colonel Jackson's letter of Thursday last, should the place merely decline to submit to the dictation of two men in an aeroplane.

I read with great pleasure the colonel's warning addressed to the United Service Institution, and am as little desirous as he is that London should rely for protection upon the Hague Article, ambiguous as I have confessed it to be; trusting, indeed, that our capital may be enabled so to act at once in case of danger as wholly to forfeit such claim as it may in ordinary times possess to be considered an "undefended" town. Let the principle involved in Article 25 be carried into much further detail, should that be found feasible, but, in the meantime, let us not for a moment relax our preparation of vertical firing guns and defensive aeroplanes.

I am, Sir, your obedient servant,

Oxford, May 2.

T. E. HOLLAND.

ATTACK FROM THE AIR.

To the Editor of "The Times."

SIR,—It was far from my desire to appear in the Press as the protagonist of what many people will consider a scare, but since I find myself in that position, may I beg your hospitality for a few more words?

As to the definition of "undefended" towns, Professor Holland allows that the Hague Article is ambiguous; but I will go further than that and suggest that, even if it were not so, an enemy might claim that the case of London was different from that of an ordinary town. He might say that an attack from the air, intended to cause extensive conflagrations or such other damage as I indicated in my lecture, was by no means a wanton bombardment, but was done in the hope of creating such disturbance as would have a sensible effect on our conduct of the war. Further, that his object was to win; that an attack on the enemy's capital is an important point of strategy, and if a particular form of attack was possible for him, it was nothing to him that we were not able to guard against it.

If the attack is likely to effect the enemy's object, I cannot see that the presence of his land forces is necessary to give it sanction. In any case, the position is so far doubtful that I think if the enemy wanted to take such action he would take it, and postpone discussion.

Of course, the "two men in an aeroplane" is rather a *reductio ad absurdum* of my argument. I instanced a single "war-balloon" as an extreme case; but the carrying power of even a single dirigible of the largest size, if expressed, say, in terms of small incendiary shells, is something to take note of.

I am grateful to Professor Holland for the authoritative information he has given us, and glad to think that on the whole we appear to be in agreement.

I am, Sir, your obedient servant,

London, May 5.

LOUIS JACKSON, Colonel.

THE ARMY SERVICE CORPS OF THE TERRITORIAL FORCE.*

By COLONEL P. E. F. HOBBS, C.M.G., *h.p.*, late A.S.C.

On Wednesday, April 1st, 1914.

COLONEL SIR E. W. D. WARD, Bt., K.C.B., K.C.V.O.,
A.S.C. (T.F.), in the Chair.

THE CHAIRMAN: Gentlemen, I think it is almost unnecessary to introduce to you the lecturer, Colonel Hobbs, whom we all know so well as a most efficient Army Service Corps officer, staff officer, and instructor. I will simply ask him now to give his lecture, which I am sure will be most interesting and instructive.

SYNOPSIS.

1. Introduction.
 2. The sixth birthday of the Corps.
 3. Its organization—and its weak spots.
 4. Enlistment. The difficulty regarding drivers, artificers, bakers and butchers.
 5. Training in non-camping period. Adjutants and permanent instructors. Training in camp. Readiness for mobilization.
 6. Relations towards Divisional Generals and Brigade Commanders.
 7. Selection of camping grounds.
 8. Hired horses, harness and vehicles.
 9. The supply branch. Supply depôts—Issuers—The possibility of having to feed a portion of the civil population in time of national calamity.
 10. Mechanical transport. The main difficulty of this branch.
 11. Inspections.
 12. Final remarks.
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LECTURE.

INTRODUCTION.

COLONEL Sir Edward Ward, Ladies and Gentlemen, when I was honoured last December with an invitation to deliver this

* This lecture was delivered extempore.

lecture, I felt bound to point out to the Council that I had already published in the *Army Review* of July, 1913, an article dealing with the Army Service Corps of the Territorial Force. The Council were good enough to point out to me, through our Secretary, that it is one thing to write an article in a magazine and another thing to give a lecture in this Institution. I need hardly say that with that sentiment I am in cordial agreement. The point of that remark is this, that in the lectures which we have here very often the most valuable part of the afternoon's proceedings is the discussion which follows the remarks of the main speaker. In fact, having attended a great many lectures here myself during the last twelve years, I do not think it is too much to say that one of the greatest forms of usefulness of this theatre has been that it acts as a clearing house, and a very valuable clearing house too, for those doubts and difficulties and differences of opinion which are bound to occur when we are considering matters of importance to His Majesty's Service. I hope that, as there are a great many Territorial officers here, they will take up any points in the discussion which I am bound to pass over quickly, because, as you will see from the Synopsis, I have a very large amount of ground to cover in an hour's lecture. In order that my position may be still more clear, may I mention that such remarks as I make to you are based, first, on seven years' experience at the Army Service Corps School of Instruction, Aldershot, where I had many members of the Volunteer Army Service Corps under my tuition—officers, warrant officers, and non-commissioned officers, first in my capacity as assistant instructor and then as chief instructor. In that way I got to know these officers and their difficulties. More recently as an Assistant Director of Supplies and Transport, I have visited for four successive years the trainings of two Territorial Divisions and two Mounted Brigades at their annual camps. There I was able to see a great deal of what is going on, the progress that has been made, and also to take notes of the weak spots which naturally appear in any organization.

The Sixth Birthday of the Corps.

The second heading on the synopsis is: "The Sixth Birthday of the Corps." I have no desire to be parochial and I do not wish to confine my good wishes entirely to the Army Service Corps; so let me begin by wishing many happy returns of the day to the whole of the Territorial Force. As you know, it is six years old to-day. With regard to the Army Service Corps, although there was an organization—it passed under the name of an organization—preceding what we got on April 1st, 1908, I shall have nothing to say but bad about it. Let me deal with it very briefly. What was the forerunner of the Territorial Army Service Corps which was begun only six years ago? We had Volunteer Army Service Corps companies

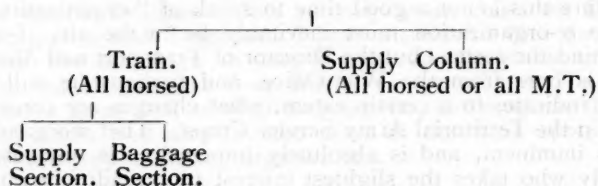
which were in a very unsatisfactory condition, not owing to the officers and personnel of the companies themselves, but owing to the want of organization. Those individuals who were shown as belonging to the Army Service Corps companies were also borne on the books of the battalion which furnished them. Therefore the battalion spared the people whom the Army Service Corps company gained, and you can easily understand that that was not a system which commended itself to commanding officers, or which led or encouraged them to give their best officers and men to the supply and transport service. I will pass over that. It is not a pleasant thing to think that it is only six years ago that we got a proper supply and transport organization for our Citizen Army. In my article in the *Army Review* I pointed out that we were inclined to bemoan the fact that there was want of "organization." That was, generally speaking, the weak point of the entire Volunteer Force. At one time we had 34 Volunteer Infantry Brigades, some of which possessed "Supply Detachments" and some did not, and with regard to the Yeomanry I think things were even still worse. There were 18 brigades with no properly appointed brigadier. They were commanded by the senior officer commanding one of the two regiments which composed the brigade, *and there was absolutely no provision whatever for their supply and transport.*

The Organization of the Territorial Army Service Corps, and its Weak Spots.

We have to turn to "Army Service Corps Training, Part III.," in order to get the official organization of the Army Service Corps of the Territorial Force as we see it to-day. In a measure this is not a good time to speak of "organization," because re-organization must inevitably be in the air. I am not behind the scenes, but the Director of Transport and Movements is here from the War Office, and perhaps he will be able to indicate, to a certain extent, what changes are contemplated in the Territorial Army Service Corps. That reorganization is imminent, and is absolutely imperative, is obvious to anybody who takes the slightest interest in the administrative services. Of course, since the Territorial Force was formed many changes have been made. We have been given an entirely new organization for our regular supply and transport service; mechanical transport has made enormous strides; the existing war establishments for the Territorial Force are two and a half years old. If you sum up all these things together you will see that everything indicates the fact that there are changes in the air. To briefly allude to the organization as we find it to-day, if you look at page 9 of "Army Service Corps Training, Part III," you will find that "14 Mounted Brigade Transport and Supply Columns and 14 Divisional Transport and Supply Columns constitute the Army Service Corps formations of the Territorial Force, and there are in all 70 Army

Service Corps companies, the establishments of which vary slightly." As my audience is chiefly technical, I do not think I need dwell on that very much, beyond calling your attention in particular to the fact that the Mounted Brigade Transport and Supply Columns have no mechanical transport whatever, but that there is a *permissive* organization in the Divisional Transport and Supply Columns for half of the transport to be mechanical. In a Divisional Transport and Supply Column we have this option, which I maintain is unsound, for 50 per cent. of the transport to be mechanical and 50 per cent. to be horsed. What do we find in actual fact? Out of these 14 divisional columns, four (the two London divisions, the West Lancashire and the West Riding) show 50 per cent. mechanical transport; one division, the East Lancashire, shows rather under 50 per cent.; two divisions, the Welsh and Northumberland, show a very small proportion, while seven divisions have no mechanical transport whatever. I submit that it is not a sound thing to have a permissive organization for units performing the same functions. By all means let us have horses in some districts and mechanical transport in others, but I do not see any reason why we should ever mix mechanical transport and horses up together. As we always must bow to local circumstances to a great extent in the Territorial Force, let us give them the option of having one thing or the other. That is the reason why I have sketched very roughly on the board a suggested organization which I have not heard proposed by anybody else. (The sketch was as follows:—)

DIVISIONAL A.S.C.



You may or may not agree with my proposal. I would suggest, first of all, that we get rid of that hideous expression, "transport and supply column." At the present moment many of our Army Service Corps units have a title consisting of 12 words. Last Saturday's *Gazette* contains a reference to the "Notts & Derby Brigade Company, North Midland Divisional Transport and Supply Column." I know it is difficult to find a substitute for those terms, but they are hideously long. What would happen on mobilization I do not know. I notice one of the London Divisional Transport and Supply Columns is content with calling itself "A.S.C., 1st London Division," and I think that is a very good shortening of the title. I suggest

that the "Divisional A.S.C." should have two branches, a "train," all horsed, consisting of "supply section" and "baggage section"; and, secondly, a "supply column," *all* horsed or *all* mechanical transport—not half of one and half of the other.

Before leaving the question of organization I feel bound to mention one fact, and that is, with reorganization in the air, I am afraid we are going to run rather a risk of weakening our recruiting power. What I mean is this. We who are connected directly or indirectly with the Territorial Force know that it is the horse which is the recruiting magnet in the Army Service Corps, and if you demagnetize your recruiting attraction I think special steps will have to be taken to get over that difficulty. I have received a good deal of information from officers with regard to the mechanical transport which at present exists in various transport and supply columns, and one adjutant tells me that he has great difficulty in getting men to come as mechanics. They are mechanics in civil life, and do not want to be the same thing in their military calling. He tells me that he has great difficulty in getting men to enlist as mechanical transport drivers, and the only way he can get them is by giving them a share in the riding school!

We are "petrolizing" our transport at an extraordinary rate in civil life, and we have done a great deal, and possibly will do more, in the army in that direction. We have taken an important step quite recently by the abolition of the horsed cavalry train in the Regular Army. But although I plead for similarity of functions, and similarity of units and nomenclature, and so forth, between the Expeditionary Force and the Territorial Force, I quite admit that the conditions of those two branches of the service are not identical. For instance, whereas we might want mechanical transport with the cavalry of the Expeditionary Force, I think horses will very often perform all the duties likely to be required of them when we are dealing with the mounted brigades of the Territorial Force.

Enlistment: The difficulty regarding Drivers, Artificers, Bakers and Butchers.

With regard to Enlistment, paragraph 143 (c) of the "Regulations for the Territorial Force" utters a pious hope in the following words: "In the Army Service Corps, men enlisted for horse transport duties should be, as far as possible, carters, drivers, grooms, with a proportion of farriers, shoeing smiths, saddlers and wheelers." We all know the old paragraph, and we also know that it is nothing more than a pious hope, for the simple reason that the Territorial soldier wishes for a change of employment when he joins the Territorial Force, in connection with which he looks upon the annual camp as the equivalent to his holiday. And

no wonder, because, as you all know, many of these men have to give up their annual holiday to go to camp, and if a man is doing one class of work all the year round you do not expect him to take his holiday by doing the same work under less comfortable circumstances. What is the result? My experience points to the fact that only about 2 per cent. of the drivers of the Army Service Corps have had any previous knowledge whatever of horses. What those drivers have been able to accomplish, taking the above fact into consideration is, I think, a very warm tribute to the efficiency of the officers, to the zeal of the adjutants, and to the pluck and spirit which is put into their occupation by the men themselves. I have seen young boys who are drapers' assistants, assistants in greengrocers' shops, electricians, postmen, pattern makers, men belonging to almost every conceivable trade *except* one connected with horses, riding quite cheerfully, first at very small fences, I admit, but fences of a sort, and taking the greatest delight in it—showing British spirit and pluck, considering their everyday life, of a very high order. We shall never get drivers for the Army Service Corps or any other branch of the Territorial Force who are spending their lives in trades connected with horses. If you think of it, there is no class of man which finds it harder to get away from his ordinary work than men who have to look after horses. We all know in our own private stables that if the groom goes sick there is a great difficulty in replacing him. Tradespeople who keep one, two, three, six, ten or twenty horses generally keep only sufficient men to look after them. The horse is a live animal which must be looked after; you cannot shut the stable door and leave the horses to themselves. Therefore I look upon it in this light. In addition to the men wanting change of work, you will never get, in any large number, in any branch of the Territorial Force, drivers who are connected with horses in their daily calling, because they cannot get away from their civil work. If they leave their work without permission, they get the sack for doing so, in ordinary common language. The difficulty with regard to drivers also holds good with reference to artificers—by the expression "artificers" I mean farriers, wheelers and saddlers. Men who follow those callings in civil life do not as a rule want to do the same thing when they are out in camp. I am glad to say that very often officers commanding Territorial units have by sheer persistency overcome these prejudices. I do not at all doubt that there are officers in this room who for perhaps two or three years have been asking a certain man, a master saddler in one of the towns close to the headquarters, or some person like that, whom they want to get into the column, and have at last succeeded. There is a natural prejudice amongst these men against doing the same class of work in their military calling that they do in everyday life. Then, again, I submit, another difficulty is set up by the military authorities themselves. I appeal to my friends, the

Director of Transport, and the commandant of the Army Service Corps Training Establishment at Aldershot, to see if that difficulty cannot in some way be wiped out. What I allude to is this. If an artificer is anxious to obtain promotion to the rank of staff sergeant he must first go to Aldershot to go through the prescribed 15 days' course with the Regular Army Service Corps. Those who have had experience of tradesmen know how dreadfully touchy many of them are. Every man who belongs to a trade thinks he is a master of it; and if you tell a saddler: "You must go to Aldershot to learn military saddlery," or if you tell a wheeler, "You are a wheeler, yes, but if you want to be a staff sergeant you must go to Aldershot and they will teach you how to be an army wheeler"—that upsets them. I quite admit the course is necessary; we want to teach these civilians military practices, service patterns and service nomenclature, but we need not take them to Aldershot for 15 days to do that. If you take a man to Aldershot for 15 days, how is he going to get to camp that year? You are presupposing a loss of work for a month, even if his employer is willing to let him go. I think that course of 15 days might very well be condensed into six or even possibly four days, my view being that all you want to do is, not to teach a man a trade, because we have not the machinery for that, but to teach him service methods. He should be a competent civilian tradesman before you enlist him, and you then take him down to Aldershot, and his instruction there might be carefully planned so as to last four or five or six days—I am sure it could be done in six days. In that time you will teach the man service patterns, military practices and service nomenclature. He will then go back to his column and will remain a master of his trade. He will not have his professional pride wounded by having been taught his job at Aldershot, but he will say; "I just went down to see how soldiers carry on."

With regard to bakers and butchers, every brigade company is supposed to have five bakers and four butchers. They are rather hard to get in some columns for the reason already given. A man who is a baker in civil life wants to join the infantry brigade of the Force, if he joins at all, or the engineers, or something to give him a change of employment. Can you blame him? He is inhaling carbonic acid gas or coke fumes for 50 weeks in the year, and no wonder he wants a change of employment. In the old days I used often to take commanding officers to task for being short of butchers and bakers, but I have rather changed my mind now, because some of these commanding officers assure me that, in the event of any real difficulty, they would get sufficient men, to come forward and enlist, who at the present time hang back because they see there is no urgent and real necessity, as they think, for their services, and because they do not wish to spend their fortnight's holiday in the same trade which they pursue in their ordinary life.

**Training in Non-Camping Periods; Adjutants; Training in Camp;
Readiness for Mobilization.**

The way in which training during the non-camping period can be conducted depends largely on the circumstances of the column. In those columns which are fortunate enough to be concentrated in a small area, everything is easy; but in other columns, scattered throughout agricultural portions of England, Wales and Scotland, it is difficult. We frequently find that one column is spread not only over a number of different towns but in a number of different counties. We have not to go far for an illustration. For instance, take the Home Counties Division. Hounslow is the headquarters of the divisional column which is scattered all over the home counties, there being one company at Brighton, another at Maidstone, another at Woking, and another at Barnet. When you have companies scattered as widely as that, you can practically never get the column together, except at the annual camp, and you cannot always do that, but this I will deal with later. My only suggestion is that this training in the non-camping period should be made as varied and as interesting as possible. Keep right in front of your eyes that your men know nothing about horses and nothing about horsemastership, comparatively speaking. Give them dummy horses to ride, and for harness instruction. Use those attachments which are easily rigged up at the end of a pole to teach them how to handle reins. Teach them to take wheels and wagons to pieces, and do everything to make their instruction as varied as possible, never forgetting a certain amount of drill, even if it is for only a quarter of an hour. Barrack-room drill or drill of any sort, which teaches a man to obey an order promptly without arguing, is the prime foundation of military discipline.

I have put down in the synopsis a reference to the Adjutants and permanent Instructors, because I think it is only fair to the Adjutants that their work should be recognized. I am glad to have an opportunity of publicly acknowledging that work, more especially as they started with very serious disabilities. Those who are behind the scenes know that although the Territorial Army Service Corps was commenced six years ago to-day, it was only as comparatively recently as January 1st, 1911, that Adjutants were given to the Territorial Army Service Corps as whole-timers. That was not the fault of the Regular Army Service Corps or of the Territorial Army Service Corps; it was a difficulty which traced its foundations to pounds, shillings and pence, a fact with which our Chairman is very well acquainted. After a good deal of correspondence, we got 14 Adjutants for the 14 divisional columns, and from January 1st, 1911, they have been able to give their undivided attention to the Divisional Transport and Supply Columns, and also to the Affiliated Mounted Brigade

Transport and Supply Columns, in order to carry out the duties of their Adjutancies. It takes officers one or two years to learn their work in the Territorial Force, and I think the way those Adjutants have jumped into their new sphere, and the improvement which they have been able to accomplish in that time is exceedingly creditable to the officers concerned. Please do not imagine for one minute that I am attributing to them the whole of the credit for the progress that the Territorial Army Service Corps has made in the last six years, but the work those Adjutants, who were very carefully selected at headquarters, have accomplished, is remarkably manifest to those who go about the country and make inspections.

I have no time to allude to the permanent Instructors. That is a question which has often been brought home to me when I have been making my annual inspections, but I think it would be more useful if I passed on to the question of training in camp. How is training in camp to be carried out? Unfortunately that is not decided by the Army Service Corps, because the first decision in this matter of how the training is to be carried out rests with the General Officer commanding the division. Are we going to have divisional camps this year, for instance, or is the Force going to split up into brigades, in three different camps for each division, and the divisional troops scattered all over England, Wales and Scotland, wherever they can get ranges? Let me say at once that the easiest way of training a column is when the division is all encamped in one locality and all four units of the Transport and Supply Column are close under the eye of the Lieut.-Colonel commanding and the Adjutant, but you will not often get that. You will find that brigade camps will be the general rule and that a division is scattered over at least three places. I could give instances in my own experience where brigade camps have been so scattered that it has made the travelling for the inspecting officer of the Territorial Army Service Corps very difficult during the August Bank Holiday week. If you get a division scattered, for instance, between Lowestoft, Shorncliffe and Worthing, one division with three brigades so far apart as that, you will easily understand that the Lieut.-Colonel commanding the column and his Adjutant can only be "visitors." The same applies to the General Officer commanding the division; if he has his three brigades and his divisional troops in three or more different places he can only be a "visitor" to his brigades, and if the General Officer Commanding has to put up with that, we have to do the same in the Army Service Corps. Although we would prefer, for the purposes of simplicity, to have the division concentrated in close areas, I repeat that you will generally find that brigade camps will be the rule, and therefore you must adapt your instruction in order to get the most out of the period, and do not forget to keep in contact with the brigade as far as possible. I am going to

speak presently on the relations between the brigade commander, and brigade major, with the Army Service Corps company of the brigade. I know there are differences of opinion on this point. An Adjutant, a very reliable man for whose opinion I have every respect, wrote to me only the other day and said he found it was unsatisfactory to allow the commanders of Army Service Corps companies allotted to infantry brigades to imagine that they are part and parcel of the brigade. I am fully aware that the Transport and Supply Column is a divisional organization, but I consider he is wrong. I think if you have an Army Service Corps company training, for instance, at Lowestoft with an infantry brigade, the more the company identifies itself with the brigade the better. I would like to see the officers of the Army Service Corps get to know the Brigadier, and the Brigadier get to know them. I would like them to know the Brigade-Major. At present they do not always know how the Brigade-Major spells his name. All these things count for something when you are going to be closely associated in times of manœuvre, of panic, or of emergency of any sort.

With regard to training in camp, might I suggest that the more military you make that training the better. What I mean is this. Instead of simply keeping your men doing drill, long rein driving, exercising day in and day out, *get them out with the troops*. I do not care whether it is a divisional or a brigade camp, the more the Army Service Corps rub shoulders with the troops the more camaraderie there will be between the different branches of the service, and the better will you pull together when it comes to the hour of real hard work. Do not hesitate freely to consult your General Staff Officer, or your D.A.A.Q.M.G.; get him to help you in any little scheme, in any night march, or any expedition that you may make in order to vary the training and remind the men that they are soldiers.

With regard to readiness for mobilization, I put that heading in because it is one of the questions specifically asked in the Annual Inspection Report, which has to be filled in by the officer who inspects each Territorial Army Service Corps unit. Is the unit ready for mobilization? I have never come across a unit that was, but I have also, every time I made an inspection, explained to the officers that it was no reflection on their commands, but it was a natural result of the conditions of their service. If the Territorial Army Service Corps possessed the secret of making itself efficient and really fit for mobilization with only 15 days' camp in each year, with men who are enlisted for four years—I say if they can make themselves fit for mobilization in that time—there would be no necessity to keep up the Regular Army Service Corps; that stands to reason. When I say I have never yet seen a Territorial Army Service Corps unit fit for mobilization, I can most cordially and heartily say

that I have seen many a company which would give a very good account of itself if you could only have it in training, say, for one month, or better still, for two months. If you could have it in camp for three months, that unit would be transformed. It would be invidious to draw distinctions between different branches of the service, between the supply branch and the transport branch, and I have no wish to do so, but owing to the simple fact that the supply men, where we are able to get them, are nearly all employed in their civil work at something similar to what they are required to do in the service, particularly the clerks (we have some very fine clerks in the Territorial Army Service Corps), they are, comparatively speaking, nearer the mobilization stage, the perfection stage, than their brethren in the transport branch, who have still to learn a great deal about horses, about how to ride, how to drive, and so forth.

Relations towards Divisional Generals and Brigade Commanders.

I have put that heading in because I think it is necessary to allude to certain circumstances which make matters sometimes a little difficult for the Army Service Corps. The Army Service Corps Divisional Transport and Supply Column is, as the term implies, a divisional organization; it is under the Divisional General, and he is responsible for its training, and the Lieut.-Colonel commanding the column is responsible to the Divisional General. But we are frequently going to get the companies off by themselves in camp, by brigades, and therefore, although the Brigadier commanding the brigade has, strictly speaking, nothing to do with the Army Service Corps company, I would strongly suggest that he should look upon that company as a son-in-law—not as a full-blooded son, but as a son-in-law—who, let us say, is a person worth making friends with, who perhaps will some time be useful and with whom some day it might be much better to work on friendly terms than to quarrel. I will tell you why. I have met cases where brigade companies of Army Service Corps have been stuck down in camp and they have not been very well treated in the matter of camping grounds and so forth. If you take a unit of the Army Service Corps, whether it is a company or a divisional column, there is no use putting it in camp unless you give it room to train. You cannot train horses, men on horses, and men driving horses, unless you have got a piece of fairly level ground. Sometimes it is difficult to get ground. I know a case in which an officer had to hire a field at his own expense in order to get room to carry out his riding and driving drill. I appeal to Brigade-Commanders and Brigade-Majors to remember these brigade companies of the Army Service Corps although they are not under the Brigadier, and although the Brigade-Major, except for disciplinary purposes, has nothing to do with them. The more closely the

Brigadier studies their wants the more he will help them to carry out their work, and the more efficient will the brigade companies become. When the brigade mobilizes, if ever it does, a good deal will depend upon the amount of sympathy there is between the Brigadier, the Brigade-Major and the brigade company.

Selection of Camping Grounds.

I have already partly referred to this subject. In addition to giving the units room to train, another very important point must be borne in mind. Very frequently we have bad weather in this country, even in August, and mounted units must be given room to move their horse lines. That is a simple thing, but it is a point which is often overlooked. I know we are often cramped for room; I know the D.A.A. and Q.M.G.'s of Territorial divisions have to ransack the country very frequently in order to get suitable camping grounds, but I do plead for sufficient room for the Army Service Corps companies, so that they may not only train their men, but, if the weather is very bad, they may be able to move their horse lines at least once during the training, otherwise great inconvenience, perhaps some ill-health, and perhaps a certain amount of accident, amongst the horses, will occur.

Hired Horses, Harness and Vehicles.

I am very glad to be able to report a considerable improvement in the horses which I have seen in the last four years. I do not say they are beyond reproach—far from it—but they have improved. I think the officers of the Territorial Army Service Corps should get to know more accurately the class of horse they ought to try and get hold of. The regulations cover more than horses. Paragraph 685 of the "Regulations for the Territorial Force" states that: "Horses, harness and saddlery, mechanically-propelled vehicles, cycles, and wagons (within the numbers laid down in Peace Establishments, Part II.) required for use during the approved period of the annual training in camp, will be provided by County Associations on the indent of the General Officer Commanding-in-Chief." It is not necessary to remind this audience that the County Association is the body which is primarily charged with the duty of finding this transport, but I have found an increased tendency on the part of County Associations to delegate to units the duty of hiring the horses. I think that is rather a good point, because after all the man who is going to use the transport is the person who should see it. If you are going to use the horses it is very much better that you should see them yourself, and see them in their stables, because it is a great difficulty, once you get these animals to your seaside resort or elsewhere—whether it is Lowestoft or Eastbourne or anywhere

else,—to replace them if the Board that is held or. them rejects the horses. I strongly urge the most careful selection and inspection that you can manage of these horses *before they leave their stables*. That is a system which I followed closely myself up to last year when we hired horses in London for the Army Manœuvres. We saw the horses in the stables; we took particulars of their age; we put down their sex, colour, the hoof numbers if there were any, and details of that sort, and we inspected them afterwards on arrival. That preliminary inspection does not prejudice you against rejecting them at the far end, but it is a protection which you ought to make use of, because I have seen some terribly bad horses in camp.

I remember on one occasion visiting a unit, and they had not a horse on the horse lines that was worth a ten-pound note. It was simply because these animals had not been inspected before they were sent, and it was left to the contractor. There are good contractors as well as bad contractors, but it is not a wise plan as a rule to trust yourself to the contractor. And do not go in for lengthy agreements. In my article in the *Army Review* you will find an allusion to an agreement referring to horse hire which took up eight pages of typewritten matter. Nobody read it, and what was the result? The agreement was violated in every clause when you saw the horses on the horse lines. I have frequently advised officers, when they are dealing with these horses and wondering whether they will do or will not do, to take a leaf out of the notebook of an officer who taught me a great deal a good many years ago, namely, Colonel C. H. Bridge. I have said to these officers: "For goodness sake weigh the horses over a *weighbridge* and find out what their weight is." A draught horse, provided it is also practically sound and of a reasonable age, should be not less than ten cwt. in weight. Do not hesitate to use the weighbridge. It is very difficult to judge the weight of a horse by the eye. I have seen many people hopelessly wrong in judging the weight of horses in that way. Twenty years ago Colonel Bridge advised me to use a weighbridge with horses. I was told by another officer that during the Zulu War he was laughed at in South Africa for putting mules and South African horses over a weighbridge. We can stand being laughed at in a case like that, because, after all a draught animal which is going to be used for draught purposes is no good unless it has a certain amount of weight. You want your draught horses to be over ten cwt., and the animals which a certain large contractor supplies do not go anything like ten cwt. in many cases. I do not say that those horses are unserviceable. They are rather a handy little horse for riding drill, but they would not be the horses to have on mobilization. If you had two or three nights out, and bad weather was encountered, you would find that you would be stuck in a good many places.

Harness is being acquired by County Associations, I am glad to say, in larger quantities, and therefore we are getting rid of that horrible old carriage harness which we used to see about five years ago. It is difficult enough to get the requisite horses of the proper standard, but it is much harder to hire harness and vehicles. No man is going to hire you good wagons to stand out in the open, and first-class harness; what he will give you is old landau harness, with leather traces, and old carriage (leather covered) hames. All the officers who are here have seen the class of thing I have mentioned. I have seen it in some of your camps, where I know you have had harness which is absolutely worthless, if only because of the collars and hames. If you put a bad collar on a horse you might almost as well not have a horse at all.

The Supply Branch; Supply Depôts and Issuers; The Possibility of Having to Feed a Portion of the Civil Population in Time of National Calamity.

The supply branch of the Territorial Army Service Corps is in a condition in which it could improve itself very rapidly. The supply branch consists, as you know, of men of three trades—clerks, butchers and bakers. I referred just now to the general efficiency of the clerks. When I tell you that many of the clerks in mounted brigade columns and also divisional columns are in comparatively high positions in civil life, you will understand what I mean. I know one who is in a very responsible position in one of our big railway companies; I know another man who is a stockbroker's clerk, and there are many others who are in positions of similar responsibility. These men are so well educated that all you have to do is to teach them military methods and military practices. They take up their work very quickly and it is a pleasure to instruct them, they are so keen; and in them you have first class material. I am quite prepared for differences of opinion in regard to what I say this afternoon, but I shall be very surprised if anybody gets up at the end of my remarks and contradicts that statement. I say that our clerks in the Territorial Army Service Corps are very fine material; and as long as you instruct them properly you can do a great deal with them. Further than that they are always up to strength, in fact most columns have a surplus of clerks, which may be taken as a set-off against the deficiency in butchers and bakers.

With regard to supply depôts, we have got rather beyond the stage where we used to look at the end of the "Supply Handbook" for the appendix showing "Supply Depôts." You may remember it, Sir, (addressing the Chairman), because it had a little pyramid of sacks and other illustrations. That is not the sort of supply depôt I want to speak about now. Every supply depôt must be established so as to meet the requirements

of the particular case. I would very much rather not be obliged ever to refer to the appendix I mentioned just now, because it gets officers into the idea that you *must* have your wood stack on the right hand side. Remember that supply depôts can be constructed anywhere and anyhow. But there is one thing to be kept in view, *the work to be done*. Having found out what the work to be done is, do not forget a very important point which is very often omitted, namely, a good "way in" and a good "way out." The same thing applies when you are reconnoitring railway stations from an Army Service Corps point of view. Having visited, I suppose, some hundreds of railway stations in the United Kingdom in my time, I have no hesitation in saying that some of our stations in England, Ireland and Scotland are about as inconvenient and as badly planned as they possibly can be. Apparently the designers or architects who constructed them were not able to look beyond their noses. They provided for no power of expansion. Sometimes you see brick or stone walls in positions where they ought never to have been put. The general facilities, means of egress and ingress, are arranged in such a way that the station could never be anything but hopeless, even from a mercantile, much less from an Army Service Corps, point of view. Bearing that in mind let me tell you this, that wherever you are dealing with horse transport or mechanical transport—particularly when you are dealing with mechanical transport—it is much better to go two or three miles down a railway line and get a station which has good access and a good yard, than to make use of one cocked up on top of an embankment, or down at the bottom of a cutting, where you just have room to move about one lorry or one wagon conveniently.

I now pass to what in my opinion is one of the most important points in this lecture, the possibility of the Territorial Army Service Corps having to feed a portion of the civil population in time of national calamity. In this theatre we have had a number of lectures dealing with the subject of food supply in time of war. I remember one lecture by Major Stewart Murray, in which the lecturer calculated that in the event of national calamity there would be ten million souls in this country who would be without food. I am not going to press the point of whether it will be ten millions or two millions; two millions will answer my purpose well enough. The fact remains that we all know that millions of people will not, in times of calamity or war, be able to buy food when it is at famine prices. How are those foodless people going to be dealt with and fed? *Certainly in fortresses* the military will have to take over the food supply, and it is possible that even in wider areas they will have to do the same thing. With the events of the last three weeks in our minds, can we say that this country is immune from the possibility of national calamity? I do not think anybody would say that. If we have a national calamity,

the military forces will, in my opinion, in *certain areas*, have to control the food supply of civilians as well as of the military, and that is why the supply branch of the Territorial Force is, to my mind, of such moment. The importance of "Issuers," alone, cannot be too much exaggerated. Some people think it is very easy to whack out food. Perhaps they have been to a school treat, and have seen five thousand children get a bun and an orange each. That is all very well; but when you are dealing with a large number of packages of articles of every sort and description, some which are marked and some which are not marked—packages of various weights and dimensions and qualities and so forth, it is a very different matter. The Chairman and I were associated in years gone by in issuing to over 100 units a day in more than one place. We know what it entails. We know what the stress of issuing means; we know what care has to be taken in educating these Issuers. So, gentlemen, even if you have the disappointing experience in camp of only having two or three units to issue to, remember that if you are teaching your men to deal with food supply you must not overlook the possibility of having to do so some day on a large scale. If you are teaching them how they can expand their work, how they can deal with thousands instead of hundreds; how they can deal with tens of thousands instead of thousands, you are doing a work which may possibly be of avail some day, and which certainly will make these men all the more efficient.

I have a note here of one of the most fascinating pieces of supply work which has ever been carried out in peace time by a civilized army—I mentioned it very briefly in my article—I allude to the earthquake in San Francisco. I happened to visit the United States a month or two after that terrible earthquake on April 18th, 1906. That was a national calamity not connected with war, but it shows how the military may have to take over the food supply of the population at such a time. The earthquake practically destroyed the greater part of San Francisco in an hour or two. Four square miles of the city were burned and destroyed, and 100,000 people were rendered homeless. What happened? Fortunately there was a General commanding, Brigadier-General Funston, who leapt to the occasion in accordance with the highest traditions of American promptitude. He organized the policing of the city; he set the Subsistence Department, as they call it in America, to organize the food supply, and magnificently they did it. Very briefly, what they did was this. They established Temporary Receiving and Distributing Points and General Relief Depôts which were capable of dealing with 400,000 rations a day. They divided the city into seven Relief Sections; they had the boundaries of each section published, the streets being named, so that everybody in the city knew where they were. They started a central fresh meat depôt which in the two months of

May and June issued one million lbs. of fresh meat. In the next place they organized a transport service, or rather that was organized by the Quarter-Master-General's Department. It may interest you to know that in the United States Army the Subsistence Department deals with food for the men, and the Quarter-Master-General's Department deals with food for horses and with transport. They are not proud of the organization, but there it is. They have two separate branches. We should have gone hand in hand and organized the two together; they would have been organized practically simultaneously. I have not time to tell you more, but that is an example of what can be done. That is an instance taken from our own time; war was not connected with it at all; it was simply a national calamity arising from physical causes, the military forces in that part of the world being called on to feed the population. I am convinced of this, that the Territorial Army Service Corps will be encouraged in what is sometimes rather dull work in camp if you tell them that *perhaps* some day they will be called on to perform these bigger things. Our Poor Law administration cannot deal with the subject; the police would be busy keeping order, and unless we use our military forces I do not see myself how, in certain localities, the food supply will be controlled. We have recently heard in this theatre a lecture from Colonel Simpson in which he told us of the preparations made on the other side of the Channel in connection with the duties of French Mayors on mobilization. Some of us deplore the fact that on this side of the Channel there is nothing which corresponds to the responsibility which falls by Regulation on the Mayors of French Communes.

Mechanical Transport; The Main Difficulty of this Branch.

One officer has told me that he was not aware of any difficulty. When I allude to the main difficulty of the mechanical transport branch, what I mean is this:—As a rule you will not get the mechanic who is a mechanic in civil life to come and drive an engine in his military calling. Secondly, although you can hire horses you cannot hire engines—at least, they would be very confiding people if they hired you an engine, because a traction engine or lorry is a vehicle that may be worth anything from £600 to £1,000, and a man can, in half an hour, do untold damage to it. Lastly, we have the factor, which I am sure is going to play a certain part in this matter, and that is that you will never make service with mechanical transport quite as attractive to the men as where they have horses to deal with. You have to bear in mind the sporting instincts of the Englishman. Even if he is a draper's assistant he thinks it is a fine thing to have his photograph taken on a horse, so that he can let his friends know that he can ride. But with regard to engines, there is a deadly dullness, as one officer told me the other day, in the mechanical transport

training, and we find that a great difficulty in dealing with the Mechanical Transport Branch.

Inspections.

Thank goodness, inspections are no longer a demonstration of bayonet exercises, and an orgy of fault-finding. When high officials, like the Inspector General of the Forces, are content to come and see units at their ordinary work, I think many of us can do the same, and many of us have. I have great sympathy with units which are over-inspected, and I have had that sympathy ever since I discovered that a certain line depôt, which shall be nameless, had had six visits of inspection in a year. If you over-inspect your Territorial Army Service Corps you simply take away the time from the training, and I therefore advise the plan which I always adopted myself, namely,—that when the Inspector of the Army Service Corps intimates that he is going to inspect a certain Territorial Army Service Corps unit it is the duty of the Assistant Director of Supplies and Transport of the Command to make a point of carrying out his inspection on the same day. The Inspector of the Army Service Corps cannot get round every column; he cannot visit all of them every year, because they all go out at the same time, either at Whitsuntide or the first week in August, but, when he does inspect, I think the A. D. of S. and T. should make his inspection at the same time. That saves a day for training, because they run the risk of being inspected by a good many other officers in addition to those two. If that inspection takes the form—it does not always do so—of a set parade, which interferes with the training, remember that every half-an-hour lost from that precious fortnight, or a week only in the case of some men, is a detriment to the Corps.

Final Remarks.

My final remarks are these. I would suggest to officers that they make their men as comfortable as possible in camp. There is rather a difference in the standard of comfort which is granted to these men of the Territorial Army Service Corps in camp. I look upon a dining tent as an absolute necessity in a standing camp. But although I like to make the men comfortable in a standing camp, and I urge you to do so, I say, get away from it as often as you can. March away from it; spend a night somewhere else; march by day or march by night. Do not let the men spend their whole fortnight there; but, when they are there, make them comfortable. Pay special attention to their messing. Set schemes, and remember that the services of maintenance can only be efficiently carried out when the military intentions of the commander of the brigade or division are being intelligently followed. I should like to make a great point of that. Supply and transport work can

never be intelligently carried out unless the military intentions of the Brigade and Divisional General are kept well in sight.

My last words are particularly addressed to those officers who have given up their time, their energies and often their money, to the pursuance of their Territorial work. I know officers who have had to take journeys in the depth of an English winter,—long cross-country journeys, some of them, by rail, by motor-car, by bicycle or on horseback—to get to their headquarters, and some of those headquarters are rather dreary when they get there. Those officers have given up their time and their abilities; they have given up social engagements; they have given up the amenities and conveniences of their private life. Some of them I know—because they have told me—have even incurred wifely displeasure by staying away from their homes on at least two days of the week from say 7 p.m. to midnight! We cannot too handsomely acknowledge the patriotic feelings which prompt that sacrifice. I have had many opportunities myself of seeing it and I should like to acknowledge it in as handsome a manner as I possibly can. Take encouragement, officers, non-commissioned officers, and men of the Territorial Army Service Corps! Remember this, that if the day of mobilization or the day of national calamity comes, the effectiveness of the troops which it is your duty to serve will be very largely governed by the efficiency existing in the supply and transport branch.

DISCUSSION.

Major-General F. W. Landon, C.B. (Director of Transport and Supplies), in opening the discussion, said: I have listened with the greatest pleasure to Colonel Hobbs's admirable lecture, and my excuse for making a few remarks is that for the past five years I have seen a great deal of the Territorial Army Service Corps. In fact, I know it very well, which means that it has taught me to appreciate most thoroughly the energy and the intelligence those concerned with the Corps have put into their work. Things have been a little difficult, and the solution of the difficulties has sometimes been very hard to arrive at. A large majority of the points of difficulty which Colonel Hobbs has quite rightly brought under our notice have already been dealt with through his excellent article in the *Army Review* of July last year; and I have also had the privilege and satisfaction, with the express sanction of the Director-General of the Territorial Force, of meeting in conference several of the commanding officers of divisional transport and supply columns. We have endeavoured to thresh out a good many knotty points, and I think we have had a certain amount of success. There is no object in my trying to go through each of the points that arose in the course of Colonel Hobbs's remarks, and I am not going to do so. But while generally agreeing with almost everything he said, I detected in his utterances one faint note of pessimism with which I do not agree. I disagree with his suggestion that there is any difficulty in getting up an interest in mechanical transport, or that there is any dullness connected with it. I quite admit that the youth of this country are very sporting, but you can be very sporting

without having a horse to sport with. I maintain that the motor bicycle and the motor car have to a great extent taken the place of the horse for those whose lives do not happen to be among horses. I have not the least fear that we shall be able to progress to the extent that is necessary as regards mechanical transport. I also feel a little more cheerful about the horse transport drivers than Colonel Hobbs does. I do not say that Colonel Hobbs's remarks in that regard were depressing; I can only say that he was not quite so cheerful about the matter as I feel about it. He said in his article that these untrained men were not carters or drivers by profession, and I certainly noticed in the case of one unit that the majority of the drivers were by trade confectioners, but they were also good drivers. Colonel Hobbs was inclined to consider that one of the reasons why they managed to get on without encountering very great difficulties was because the horses were not young, highly-fed, or untrained animals. I quite agree. The horses that one used to meet with that were supplied by Territorial County Associations were certainly not highly fed; I do not think I ever met a young one, and they were certainly not too spirited. Some of them were very useful animals, but I found some extremely vicious, unpleasant brutes for any man to have to deal with. I was told, when inspecting one column, that one of their young drivers had been killed and two others sent home through being badly injured by the vicious horses that were supplied. That was some three or four years ago, and things have very considerably improved since then. I do not think we need be in the least anxious about the drivers when you bear in mind the sort of animals that they have had to deal with in the past. With regard to inspections, I thoroughly agree with the lecturer in regard to what he said about inspections, namely, that the Assistant Director of Supplies and Transport, who inspects for the G.O.C.-in-C. of a command, should make his inspection coincide with that of the Inspector of the Army Service Corps. But I go a little bit further and say that the Divisional or Brigade General, as the case may be, should also endeavour to join that combination. I have found that course adopted with the greatest possible success. We were all mutually pleased with our endeavours to assist the unit we were inspecting, and it saved, as Colonel Hobbs rightly said, several days of the training being wasted. As regards local courses of instruction, I feel very strongly in regard to the difficulty that Territorial non-commissioned officers experience in complying with the regulations on the subject. The reason we rather insist on the system as it is at present is because local courses of instruction mean lack of uniformity and lack of proper facilities, but I assure Colonel Hobbs that we are endeavouring to meet that difficulty. There is another point that Colonel Hobbs alluded to in his article, if not in his remarks to-day, and that is the absolute necessity for cordial co-operation between Territorial Associations that adjoin one another when the transport and supply columns have two, three, and sometimes four Associations to look to for their support. That is very important. After I had been inspecting Territorial Army Service Corps for four years, I found there was a great improvement in that respect as regards the County Associations. It was not understood at first that you got a company of the brigade which belonged to one county working on totally different lines from a company of a brigade in the next county. I now propose to make a few remarks, in response to Colonel Hobbs's expressed wish to me that I should do so, on the subject of the proposed changes in organization of the Territorial Army Service Corps, which have

been necessitated by the experience we have gained at army manoeuvres and army exercises, more especially within the last two years. I know that my Territorial Army Service Corps friends present will say to me: "It is more than a year ago since you told us that this was going to be fixed up; and nothing has come out of it yet." But there was very good reason for that. It was never contemplated that the Territorial war establishments should be brought out afresh until we had made more progress, and had had further experience of what an army in the field required under conditions where mechanical transport played a very large and important part. Before making these remarks, I should like to mention to all Territorial Army Service Corps officers present a thing which is not always properly understood. The formulating of the policy on which they must work is entrusted to the General Staff, and it is the function of the officers of the Territorial Army Service Corps to do their level best to carry out that policy. I want them to remember that they are not staff officers, they are not administrative officers; but they are what I venture to consider is the most useful class of all—executive officers. These changes have been very carefully considered with a view, as far as possible, to creating a satisfactory analogy between the arrangements for the supply and transport services of the Expeditionary Force, and the arrangements for the supply and transport services for home defence. Absolute sameness is impossible; the conditions of home defence do not admit of it. I want you to clearly understand that what I am alluding to are only the principles on which the General Staff are working with our co-operation. They are not cut-and-dried; on the contrary, there are a hundred and one little points to be considered. For instance, with regard to what Colonel Hobbs mentioned just now, nomenclature, *i.e.*, what you are to call the Army Service Corps of a division—and other questions of that sort to be considered. Briefly, it is proposed to take away the second line transport, *i.e.*, the regimental transport, from the units of the division and hand them over to the Territorial Army Service Corps, with the exception of the water carts, which will become first line transport. Then we shall have—I will not call it with Colonel Hobbs's words in my mind—the transport and supply column, but the Army Service Corps responsible for the supply and transport services of the division. That is a good deal longer, I am afraid, but it is not the name I hope we shall ultimately fix upon. That organization will be divided, we hope, into two parts; one part will be horse transport, the other part will be mechanical transport. The horse transport again will be divided into three sections, A, B, and C—A, the baggage section; B, the reserve section, which will always carry with the formations one day's food and forage; and C, the supply section, which will work between the refilling point and the troops. The other part is the mechanical transport column, we will call it—I do not say we may not ultimately call it the train, but we will call it a column at present. That column will work, we hope, between the railhead and the refilling point, and will work backwards and forwards every day. That will be the mechanical transport part of this divisional transport and supply organization. The next point I want to allude to very briefly is the Mounted Brigade Transport and Supply Column, or whatever it may be called in future. There is, as Colonel Hobbs said, a considerable element of difficulty about this formation, owing to its being formed on a purely horse basis. I think it is generally accepted by all students of military matters—and it is borne out by the Expeditionary Force war establishment for 1914—

that the only way in which the supply and transport services can be successfully performed in the case of cavalry is by fast-moving motor lorries. It is considered that to have a horse-drawn train fully loaded endeavouring to follow cavalry in the field would be seeking for trouble. It is highly probable it would never arrive at the place where it was wanted in time. Therefore we have decided in the case of the cavalry division to stand by a mechanical transport train. There are a good many difficulties about arranging for that, and it is by no means settled finally as regards the Territorial Army Service Corps with mounted brigades. What definite shape the change will take I am not at present in a position to tell you; but I do know from experience that we can absolutely rely on all the officers of the Territorial Army Service Corps to join with us and do their level best to carry out whatever changes may be decided upon; in fact, they have already by their suggestions given us invaluable help.

Major R. J. Cox: A few of the points that I intended to refer to have already been covered by what General Landon has said. I should like to mention, however, that Colonel Hobbs referred to a difficulty that exists with regard to the promotion of artificers in the Territorial Army Service Corps. The lecturer laid rather a large amount of stress on that point, and said that a civilian tradesman thought it was beneath his dignity to go to Aldershot and be taught military methods. My experience is that the difficulty of wounded feelings does not exist at all. I think the difficulty of attending a course is entirely due to the fact that a good man cannot be spared from his civilian occupation for more than a fortnight in the course of a year. It is very often only with the greatest difficulty that he gets to camp for the whole of the 15 days. Under the existing regulations for promotion, not only are artificers required to put in 15 days at a military depôt, but the transport and supply sergeants also. There, again, the very same difficulty exists. The good Territorials are also good men in their civilian occupations. Some of them, as the lecturer said, are in very important positions in civil life, and they cannot possibly get off to do these 15 days at Aldershot as well as their 15 days in camp. They are, in very many cases, thoroughly good N.C.O.'s, and are quite fit for promotion (better fitted very often than the men who can be promoted according to the regulations) because, as a rule, the man who can get away to attend a course at Aldershot, in addition to attending camp, is a man who falls out of work, because he is not much good at his trade. I was very pleased indeed to hear General Landon say that that regulation may be revised in the future. If I might presume to do so, I would suggest that such N.C.O.'s as are recommended by Territorial officers on the permanent staff as being carefully and thoroughly trained might be put through a good stiff examination for promotion at the annual training, and, if they qualified, they might be promoted under those circumstances. I am quite sure that every Territorial non-commissioned officer, if he could go through this 15 days' course, would do so, because they thoroughly enjoy themselves and they are very much the better men for the training they receive at a military depôt.

Lieut.-General E. C. Bethune, C.V.O., C.B.: I am thoroughly in agreement with the tenour of the lecture given by Colonel Hobbs. We have always to remember that the Territorial Force is a voluntary force, and we have to go out of our way to encourage them to come in, by suiting

their training to their needs. I do not mean to say that there is a tendency on the part of the Territorial Force to shirk their duties in the way of training; quite the opposite. But the civilian duties of Territorial officers often prevent them attending courses and thereby qualifying themselves officially for promotion. Unfortunately we cannot take into consideration private circumstances in the lives of officers, and if an officer cannot find time to go through a course he must suffer, and be superseded by officers who have more leisure. It is not only necessary to have efficiency in the Territorial Force, but we also have to satisfy our critics that officers have taken the necessary steps to qualify officially, and it is no use having these tests unless we insist upon officers passing them. When the public begin to realize what an enormous asset we have in the Territorial Army, then I think our difficulties will be halved and our efficiency will be doubled. I quite agree with what Colonel Hobbs says with regard to the feeding of the civilian population. I also agree with what he says about horses and vehicles—that they will be improved by degrees. Our territorial system is a system of compromise, we want the very best and have to be content with what we can get, and after five years' close experience of the Territorial Force I think that what we are getting is very good indeed.

Captain J. Atkinson: I should like, as a mere company officer, to say how very much I appreciate the lecture that has been given us by Colonel Hobbs, because in that lecture he has given us the benefit of the experience which he has gained all over the United Kingdom. Colonel Hobbs in his lecture was very careful not to go too far. You are all acquainted with the old adage that "Fools rush in where angels fear to tread." Colonel Hobbs was the angel, I am the other party. There was one point which he did not criticize at all, and to which I want to refer. We have talked a great deal about the higher training of the men, but I think one of the weak spots in the Territorial Force at the present time is the want of higher training for the senior officers of the Army Service Corps. What is the situation at the present? A young man comes in and passes certificate A, which is a mere fleabite. He has a fairly difficult exam., certificate B, to pass before promotion to captain, then he rusticates for a few years, goes up for certificate C, and then he has nothing more to do, and can go right up to the command of a unit. In ordinary business life it is a case of the survival of the fittest: the best man gets the job; but in the Territorial Army it is largely a case of the limpet who hangs on who gets the job. A senior officer has no drills to attend. He practically hangs on for a few years; he gets very sadly out of touch with the work, and we know quite well that unless a man is compelled to tune himself up occasionally it is very difficult, especially when he gets over 40, to pull himself up to the necessary standard. I do submit that it would encourage junior officers if we had stiffer and tougher examinations for the senior posts in the Army Service Corps column, and that the present commanding officers of the Army Service Corps columns should be compelled to get up to a higher standard than they do at present. There are two more little grumbles I would like to mention. I am not looking now through the rosy spectacles of the commanding officer, but through the dusty and work-worn spectacles of the junior officer, the man on whom the brunt of the work falls. For a brigade company, which is split up into three sections, the War Office very generously give us two wagons and two sets of harness. It is well known, however,

that wagons are sold to the Israelites for a very small amount, and those wagons would do perfectly well for instructional purposes, and I cannot see why they should not be doled out to those Army Service companies which are split up into various sections. I may say that on one occasion I was lucky enough to buy some of these Army Service Corps wagons which were scrapped from the Regular Army. I got them for £5; they have been in use five years now, and the County Association have given me £5 every year for them for the annual training. The most remarkable part of the whole matter is that I have the very best reasons to believe that, having made those wagons perfectly serviceable, they are now included in the mobilization schemes of the very commands which originally rejected them. I submit that if, instead of giving these things away to the Jews, the War Office would allow us to purchase them out of our company funds and allow us to use them for our isolated units it would be an excellent thing. Then I want to emphasize the question that was mentioned with regard to moving camps. I go out to camp about 60 strong, and I have five wagons only with which to train these men. That means that I cannot get a decent wagon parade and I cannot utilize all the men, and as a consequence a certain number of the men are doing nothing unless I give them lectures on horses and so on. I further strongly advise any officer here to try and get the Brigadier-General and Divisional-General to allow the Army Service Corps to get right away out at camp, and go on trek. You get through far more work in that way; you can teach your men far more in one day on a trek than you can teach them in camp for a week. Let them get away at any rate for one week and go anywhere they like over the country, and they will obtain more good in that way than in any other.

Colonel T. J. Kearns, C.B.: As a Territorial commanding officer I should like, on behalf of the Territorial Army Service Corps, to thank Colonel Hobbs for the lecture he has delivered this afternoon. The Regular Army Service Corps may rest assured that the members of the Territorial Army Service Corps are doing their best to further the interests of the corps generally, and to be of service should necessity arise. There are, however, one or two points in the lecture on which I would like to make a few remarks, namely:—Classes of Instruction, Mechanical Transport, and Supply Administration. *Classes of Instruction.*—I agree with what General Bethune has said, that there should be a certain standard of qualification for a Territorial man, and that the country should know they are getting value for their money. There are, however, many difficulties which "Artificer" non-commissioned officers and men of the Territorial Force have to contend with in attending long courses at Aldershot and elsewhere to carry out compulsory "military" qualification. A large number are married men, with families, and can ill afford to lose 12 days' work and possible earnings. No opportunities for actually teaching trades obtain in the Territorial Force, therefore we endeavour to get men fully qualified, as no one with the slightest experience of organization and efficiency would even contemplate appointing a man to perform the duties of a farrier, wheeler, saddler, or mechanic, without knowing that the individual had sufficient experience in either previous military, or civil, life. I am of opinion that an examination held at the annual camp would suffice, so as to dispense with the 12 days' course now demanded by regulation. I would suggest the regulations be made more elastic and the necessity for long courses be left to the discretion of the

General Officer commanding the Division, etc. *Mechanical Transport.*—I cannot agree with Colonel Hobbs that mechanical transport is unpopular, uninteresting, and also detrimental to recruiting. I think the sooner the fully horsed column commanders of the Territorial transport service realize that the transport of the future must be mainly mechanical, the sooner they will be on the right line. To extend your radius from railhead—I do not care whether you go right up to the troops or within five or ten miles of them—the fact remains, mechanical transport, of a quick-moving type, is absolutely necessary, and we cannot get away from that fact. I, however, admit that, as an alternative for military purposes, a certain percentage of horsed transport is also necessary. What I have already said on this point is intended as words of advice to those keen commanders of Mounted Brigade Transport and Supply Columns, who are inclined to think that because the troops which they serve are mounted, they should be mounted also and retain horse transport. The sooner they turn their attention to light mechanically-propelled vehicles of internal combustion type the better it will be for themselves and also the troops whose supply they are responsible for. We should not, and cannot, allow sentiment to retard efficiency. *Supply Administration.*—The feeding of the civil population in time of national emergency referred to by Colonel Hobbs has, I am glad to say, not been lost sight of elsewhere. As a member of a special committee in connection with the London Chamber of Commerce, I know that the question of stock of foodstuffs is being seriously considered. There are plenty of well-qualified people in civil life prepared to form administrative local bodies for distribution under proper central control. I am somewhat surprised at the suggestion that the Territorial Army Service Corps should be called upon to undertake this service. Our establishment is only sufficient to cope with Territorial requirements, and great difficulty is experienced at times, and in some places, to even get the right men for this work as Territorials. We cannot undertake the responsibility of civil supply and administration thereof, and other arrangements must be made to that suggested by Colonel Hobbs in his lecture to-day. In regard to supply depôts, and the remarks of Captain Atkinson, I think if the officers and non-commissioned officers, to whom he refers, put their shoulders to the wheel, and carry out efficiently only that which is demanded of them and not go into the question of higher education for the moment, they will be more satisfied in the end.

Captain P. C. Franklin: I desire to refer to the training in camp of the headquarters company of a divisional transport and supply column. Brigade companies have definite tasks allotted to them, but in most divisions the headquarters company has no practical work to do. It is my experience that, if you wish to kill a man's enthusiasm give him nothing to do. With regard to the transport section of the company you can work out convoy schemes and the like and get a fairly satisfactory training in transport duties, but in the case of the supply section the only satisfactory training is actual work. Four times out of five the supply section is not utilized at all. I have not been able to verify the fact, but I have been informed that at some artillery camps comprising several units supplies are obtained direct from contractors. With idle supply sections about the country there is something wrong if units are getting supplies direct from contractors. Also, we could utilize these detachments on manœuvres. In the January number of the *Army Service Corps*

Quarterly, in an article by Major Young on the "Army Service Corps Work during the Army Exercises, 1913," it is stated that there was such a shortage of Army Service Corps details behind railhead that men of other arms had to be employed as issuers in the railway supply detachments. Surely the Territorial Army Service Corps is fitter to do this than men wholly untrained in Army Service Corps duties. There are many officers and men in the Territorial Army Service Corps who would be only too willing to undertake definite tasks during the army exercises in lieu of ordinary camp training.


The Chairman (Colonel Sir Edward W. D. Ward, Bt.): Gentlemen, I have to thank Colonel Hobbs on your behalf for the very excellent and interesting lecture he has given, and I have also to thank those gentlemen who have spoken for the many interesting and instructive points they have taken up. It was a great pleasure to me to take the Chair at this lecture to-day, because the lecturer and I are very old friends. He was my Deputy Director of Supplies during the South African War, and a splendid Deputy Director he was. The whole subject has been so well threshed out to-day by Colonel Hobbs and those who have spoken, and the hour is so very late that I do not intend to make many remarks, as all the points that have been raised have been answered by Colonel Hobbs. But as a retired officer and official I should like to say just a few words to the junior officers of the Territorial Force. Gentlemen, you have joined a corps which more than any other gives you opportunities and chances of using your business knowledge. You have also joined a corps in which I think you have more chances of advancement than in any other corps. Let me explain exactly what I mean by this. In the Army Service Corps the junior officer and the individual officer have more chances—in fact they are thrown at him—and more individual responsibility than in almost any other corps; and the officer who wins through under those circumstances shows that he is a man who has joined a corps which is worthy of him. When I look back to my experience a good many years ago in the South African War, I remember a large number of very junior officers on whom very large responsibilities were thrown, and I am proud to say as an old retired officer of the corps that one and all who came under my notice well carried out the responsibilities they undertook. It is only on service that you understand your difficulties and your advantages. You begin to understand too (and that is one thing which I know all we old officers of the Army Service Corps are proud of) that your success or failure spells to a very large extent the success or failure of the operations which your leaders are carrying out. There is one point I should like to touch on, although I am afraid it is on very delicate ground. May I suggest to you all that you should learn your work in peace time, and get it thoroughly at the end of your fingers, and then when you go on active service do not be too much tied down by the regulations. There are two things and only two things to be thought of, that is how the troops are to be supplied, and how those supplies are to be transported. There is another point which I should like to once more emphasize, and that is the necessity for the Army Service Corps officer never fearing to take on responsibility. You will find on active service that your responsibilities are never ending, and a man who fears responsibility is absolutely of no use in the Army Service Corps. There is a good deal of discussion nowadays as to a division of the duties of Army Service Corps officers. I should like to say that, as far as my

experience has gone, every officer of the Army Service Corps ought to be an efficient supply and also an efficient transport officer. It is difficult to know which is the worse, which is the more trying to the temper. I have had a long experience of both, and I have never been able to make up my mind which is the worse. If you are a transport officer you have a long column to go up and down, and you have to cover three times as much ground, if you do your work, as any driver or animal in your column has to cover, and when you get into your camp your work is still to be completed. If you are a supply officer, you not only have to bear in mind the daily wants of the army, but you have to satisfy yourself that you have the necessary reserves. You have to be prepared for the practical certainty that many unforeseen difficulties will be met with before you get the reserves into your possession. A ready acceptance of responsibility and a determination never to be beaten in your work are the best moral equipment for an Army Service Corps officer. It is a good many years now since I left the corps to which I was proud to belong. That was not in the glorious days that several speakers have referred to of mechanical transport. My last experience as a soldier was obtained with the more slowly-moving ox-transport in South Africa, and when I heard Colonel Kearns and other officers mentioning the rapidity with which supplies will be whisked up nowadays, I thought of the weary days spent in the drifts of South Africa, and I envied my comrades who have the advantage of serving in these more enlightened days. I should like, as an old Army Service Corps officer, who has served in three campaigns, to impress upon you all the necessity of studying very deeply the remarks which the lecturer has made. His words are full of information, and they have been supplemented by other officers who have also studied the subject deeply; and I am certain that their practical remarks will form an excellent text-book for the future work of the Corps. Looking back to my old War Office experience, I should like to say how glad I have been to see, during my service there and during the period of the formation of the Territorial Army Service Corps, the good reports made on them by the different Generals under whom the various Army Service Corps units have served. I recognize all the difficulties which have been touched on by the various speakers, but I do feel that, considering the difficulties which the Territorial Army Service Corps have had to contend with, they deserve nothing but credit and the praise of their countrymen for the way they have carried out their work. I have only one more duty to perform, and that is formally to thank Colonel Hobbs in your name for the very excellent lecture he has given us to-day.

Colonel P. E. F. Hobbs, in reply, said: As the hour is so late I will make only a few remarks. I have very little to comment on in the discussion, because I am the last person to imagine that everybody would agree with me. You will remember I said that this Institution was a clearing house for those differences of opinion which we all have a right to hold, and it is only when we have the courage of our opinions that we are able to exchange them. I would like to refer to one point mentioned by General Landon. I am afraid he has misunderstood what I intended to say about the drivers. I am not a bit downhearted about the horse transport driver. What I wished to convey, and what I said in my article, was that the difficulty we have to contend with is that he would not belong to any trade connected with horses, and we must face that difficulty with our eyes open and do all we possibly can for him,—make

his instruction as interesting as possible remembering that we shall never get the horsekeepers or men connected with horses as territorial drivers. The other point to which I wish to refer was mentioned by Colonel Kearns; who told us that mechanical transport is the transport of the future. We are all, I think, perfectly alive to that; I mentioned myself that civilian transport was being "petrolized" to a large extent. But I would remind him of this, that seven out of the fourteen Transport and Supply Columns have no mechanical transport at all, and the reason they have not any, is not, I think, because there is any want of appreciation on the part of the officers of the importance of that style of locomotion, but that many columns are located in areas where so far there is not that transport to draw on, or at any rate, there would not be that transport to draw on without poaching on the vehicles which we have earmarked for other military purposes.

At this late hour I will not say anything further.

A vote of thanks was accorded to the Chairman  presiding, and the meeting terminated.

By SERGEANT JOHN PORTER, Royal Welsh Fusiliers.

SIR,

Your Unknown Humble Servt.

To Mr. William Tandy at South Littleton near Evesham,
Worcestershire.

By God's Permission.

Some Remarks made on the Grand Enterprise, By Jno Porter, Serg. of Grenadiers Rl. W. F.

1/30	Guns never at sea.		
3/20			
2/16	} New		
4/12			
3/20			
2/30	} Old	} Burnt in the Harbour at Solidore St. Maloes.	
5			
26	Merchant Men.		
46			
1 of 50 guns	} New.	} Burnt at Servant.	
4 of 22			
3 of 18			
2 of 40			
60	Merchant Men.		
70	A True List.		

A Great quantity of Tar, Oil, Deal, Coardage, Timber, Riging, Sailes, Masts, at the Store houses of Point de Tallard.

Newspapers I am sensible tells otherwise. But this is actually true geting the best Acct. from head Quarters.

ENGLISH SHIPS ON THE EXPEDITION.

Ships Names.	Commanders.	Rates.	Guns.	No. of Men.
Royal George ...	Admiral Anson, Sir Percy Brett	1st	100	850
Ramilies ...	Admiral Hawke, Captain Tayler	2nd	90	750
Norfolk ...	Captain Bentley ...	3rd	74	600
Archilles ...	" Barrington ...	4th	60	420
Chichester ...	" Willet ...	3rd	70	520
Burfluer ...	" Graves ...	2nd	90	750
Nework ...	" Holborne ...	2nd	80	620
Feugox ...	" Knight ...	4th	64	500
Duke ...	" Hanway ...	2nd	90	700
Alude ...	" Douglass ...	4th	64	500
Neptune ...	" Galbraith ...	2nd	90	750
Duke de Acquitane	" Shirley ...	4th	64	500
Intriped ...	" Pratten ...	4th	64	420
Magnanime ...	" Porter ...	3rd	74	700
Union ...	" Everett ...	2nd	90	750
Torbay ...	" Kepple ...	3rd	74	700
Starling Castle ...	" Cornish ...	3rd	70	520
Dorsetshire ...	" Dennis ...	3rd	70	520
Windsor ...	" Falkner ...	4th	60	420
Shrewsbury ...	" Pallister ...	3rd	70	520
Faulmouth ...	" Willm. Brett ...	4th	50	280
Dunkirk ...	" Digby ...	4th	60	420
Chatham ...	" Lockhart ...	4th	50	280
Iris ...	" Wheeler ...	4th	50	280
Lenox ...	" Geary ...	3rd	70	520
America ...	" Byron ...	4th	60	420
Rippon ...	" Jechelie ...	4th	60	420
South Hampton	} To repeat signals.		40	140
Leostaff ...				
Acton ...	} Fireships.			
Strombolo ...				

The above Fleets left us the day we left St. Hellens and steared for Bisquee Roads.

TUESDAY, 23RD MAY.—Orders were given for the Embarkation on the 25th, the Brigade of Guards and 1 Brigade of Foot.

THURSDAY, 25TH.—In consequence they Embarked at Cowes and fell down to Spithead.

FRIDAY, 26TH.—The 2nd and 3rd Brigade did the same.

SATURDAY, 27TH.—The 4th Brigade with the Artillery likewise embarked at Cowes and fell to Spithead leaving Talbot's Regt. destined as said for Jamaica. The Nine Troops of Light Dragoons Embarked the 24th Inst.

28TH.—Lord Anson's Fleet fell down to St. Hellens and lay across to the Isle of Wight—as protection to the Fleet of Transports.

SUNDAY, 29TH.—Commodore How in the Essex of 64 Guns, Capt. Dorell with the following ships, Deptford 60 Guns, Rochester 50; Portland 50; Richmond 36; Rose 24; Flamborough 24; Success 24; Dilligence, Swallow, Saltash and Speedwell of 14 Guns each with Fireships, Bombs and Tenders and 25 Sail with Horse, 36 Transports with Infantry. There we lay till the 1st June.

THURSDAY, JUNE 1ST.—When in the morning Ld. Anson's Fleet got under way, in the afternoon, Commodore How with the Transports sailed with a strong Gale, at E.N.E. and stood over to the Coast of France between 5 and 6 in the afternoon saw Ld. Anson's Fleet laying to at some distance which a little afterward made Sail and was soon out of Sight, standing down the Channel and as we supposed going to the Bay which provd so. Having Intelligence the 13 June in Cancalle Bay of the Fleets being before Brest we lay too most of the night with our heads to the Southward.

FRIDAY, 2ND.—Early in the Morning saw the French Coast between Cape Berfler and Cape da Hague, about 7 o'clock made the East Cape, Hazy weather, at 9 made the Island of Alderney, soon after Gurensy, the Wind Calm, we were, by the rapidity of the Tide in the Race of Alderney, drove out near 3 Leagues to Sea, weather now fair and calm, by this time the whole coast was alarmd. We saw a White flagg hoisted at a place that had the appearance of a Fort, we suppos'd this their Signal of any Enemy. We could not at any time perceive the Usual Signal of a Fire, and the Currant that drove us out was now so favourable in setting us in and anchord near 2 Leagues to the N.E. under Alderney.

SATURDAY, 3RD.—In the morning at 6 Weight Anchor, Wind scanty but the Wind rising drove us between the Isles of Sark and Jersey and Anchord there about 3 o'clock. When the Ward, Transport, with Part of the 1st Regt. of Guards ran fowl of the rocks close to the Sark and was lost, but the Troops and the Crew all saved, the Jason, Capt.

Paston an old 74-gun Ship, carrying but 36, Joined us from England about 9 at night weighed and stood for St. Maloes, Little Wind.

SUNDAY, 4TH.—About 8 this Evening anchord near Cape Frehet about 4 Leagues to the Westward of St. Maloes.

MONDAY, 5TH.—Weighed early this Morning and stood for the Bay of Concales. The Famous Castle called Mount Michael is in this Bay. About 12 o'clock Commodore How in the Essex run close in Shore and was fired on by a little Battery of 3 guns on the side of a Hill, the Swallow running nearer at another place receivd and returned the Fire of another small Bettery for near an Hour, during which she had a shot in her Buadroom but not a man hurt, she was toed off by Boats, about 3 o'clock the flatt bottomd boats were Hoisted out and the Grenadiers ordered to the Essex, between 5 and 6 Commodore How hoisted his Flagg on board the Success, Capt. Oarry, and in company with the Rose, Capt. Clive, Diligence, Capt. Eastwood, and Flamborough, Capt. Kennedy, steard directly which had on him in the Morning. He run within half a Musquet Shot of the Shore without returning a shot, the Battery having fired at him a long time, and then brought up, giving them a very smart fire till the other two ships came up, and then the Battery soon ceased firing, but by their last shot killd the Boatswain his meate and one man on the Quarter Deck of the Success, this little Battery of 3 Guns 24 Pounders was abandoned by all but the Commander and 2 Men who behavd very gallantly. The Grenadiers of Kingslies, Rl. Wh. Fuziliers, Hume's, Cornwallis's, Londons, Hays, Effingham, Manners's, Wolf's and Lampton's had got on shore at the small Village, Layhoule, close under the Battery. The Welch Grenadiers I can depose, being myself a sergt. in them, landed first and Seconded by Ld. Effinghams. A detachmt. was immediately sent to dislodge a Party of the Enemy from a Wind Mill on the Top of a Hill who had fird on the Welch Grenadiers when drawg up at landing, but the first Fire of the Detachmt. the Enemy took flight, leaving 50 Prisoners mostly Peasants behind them, the Grenadiers were ordered then to Man and take post on the Adjacent Hills, in order to favour the landing of the Troops which they Bravely did, through a Dangers and Narrow pass had it been defended, $\frac{1}{2}$ of Effingham's landed first, then Bentick's, part of Kingslie's and all Manners' and Cornwallis's Battalions, by about 11 o'clock when the Disembarkation was put a stop to by the darkness of the night and the tide leaving. Leaving the Flatt bottomd dry on Shore: We lay on our arms on the Beach all night, We could perceive all the after-noone numbers of arm'd people near the village of Concale, but could not distinguish if they were regulars. But by

some wounded men taken in the Fort at Concale we were told the Regimt. of Bouloignois to which they belong'd had been sent there from St. Maloes, but they fled on our landing without firing shot, unless they were of the Party of the Wind Mill.

TUESDAY, 6TH.—At Four in the Evening the Grenadrs. marched thro' the Village of Concale about a mile and Encamped with their left to the Town, near a Windmill. The 3 Batts. of Guards and Bentick's when disembark'd Join'd them there and Encamped with them.

The Remainder of the Forces being this day disembark'd encamp'd about a mile from the Town with our right to it, near the Windmill the enemy had fired from, this night the Welch Grenadiers were advanc'd to a Post about Half a mile forward from the Grenadrs. where 200 Regular Horse had fled from.

WEDNESDAY, 7TH.—By daybreak the whole army with 10 short 6 pounders, except the third Brigade who were left to throw up lines to secure our retreat in case of need and make roads for the Artillery, march'd in 2 Columns by different Roads.

The first by the high road to St. Maloes, the 2nd over a very fine road but very Close where the Enemy if courage might have much annoyed us, But the Grenadiers and Light Troops went forward to force they if Occasion required, but so great was their Consternation the whole Country had retired to the strong Fortress of St. Maloes.

The 2 Columns join'd about 4 Miles from St. Maloes march'd together and encamp'd about 7 o'clock in the Evening with the Village of St. Ydon on the Right and Parame in our front about 2 miles from St. Maloes. The Grenadiers had taken possession of the Town of Parame and Encamped in our front. The Enemy this afternoon and next day blew up the Causway of the narrow Isthmus or narrow road that joins St. Maloes to the Continent, this day Effingham's and Cornwallis's Grenadiers had the advanced Post within a mile of St. Maloes.

All night 4 Picquets and 200 light Horse were ordered out and marched to Servant, a kind of Fauxbourg to St. Maloes, where they burn'd and destroyed the Enemies Shipping to the amount of 118 Sail beside a number of Small Craft not Mention'd, the Naval storehouses in which were great quantities of all manner of stores, they Continued burning the 8th and 9th.

This night 3 Batts. and 5 Companies to the opposite side of St. Maloes were sent to Burn the Shipping there, the 2nd Brigade and all the Picqts. in case of need to support the detachment sent to burn the shipping. While they could not do this we could have little thought of the Town, for we could not gain this Point.

"This day the Battery of 3 Guns which had fired on the Swallow and three others of the same No. of Guns were taken possession of by the Men of Wars boats, the Enemy having spiked up the Guns and abonded them, in the Magazine of one of the Forts 1,000 Shot and 15 large Barrells of Powder were found, which were with the Cannon thrown into the Sea, a Very inconsiderable quantity of Ammunition was in the other Forts.

THURSDAY, JUNE 8TH.—The Artillery was countermanded and ordered round by Sea, a Drum was sent into Town, supposed a summons to surrender but without Success.

And for a sum of Money to save the Town from a Bombardment it was reported we were to retreat immediately, and by an order for the Army to lay accoutred in their Tents and ready to turn on a moment's Warning, and Picqts. to lay on their arms in the front of their Regimts, we thought it absolutely certain, the first Battalion of Guards and Harpers join'd us from the Camp at Concale. The Guards encamped with the Grenadiers at Parame in our front, Hays's on the left of all, a French messenger was taken by Effingham's Picquet in the Town of St. Servant going express to St. Maloes with Intelligence that if they could hold out two or three days they would be relieved by 20,000 Regulars. Some Ships were burnt at Soldion Port of St. Servant so call'd, a most dreadfull storm this night of Thunder and Rain with Great Lightnings. In the afternoon a party of Light Horse took possession of a Fort called Rontaineu of 16 Guns which the Enemy had spiked and abandond.

FRYDAY, JUNE 9TH.—Early this Moring a Subaltern and 30 Men detached from an advanc'd Picqt. of Effingham's was sent to the above Fort. Early also this day a Working Party of 500 Men were ordered to mend the Roade to St. Maloes.

Which alterord our Oppinion releative to the retreat, Corroborated also by an order to send to a Bay near the Fort of Rontaineux for 6 dayes provisions got ready on board the ships. We certainly concluded that the Town would be beseiged. Col. Brown with 200 light horse sustained by a Battn. of Guards advanced to the City Dol, 15 English miles from the camp. He entered the Town with 25 Horse only Without opposition, and remaind there all Night with his whole Command. He sent Intelligence that an army 1,300 Men commanded by Duc de Acquillan were then encamped near Dol. He saw their Advanced Guards a Regimt. of Cavalry and a Regiment of Artillery 5 miles beyong Dol, an Express was thereon sent to the Fleet and a Cutter sent to Countermand the Artillery.

SATURDAY, 10TH.—About 11 o'clock the 2nd Brigade, Hays's, the 1st Battalion of Grenadiers, Consisting of Kingslies,

Homes, Hay's, Manners, and Wolfs, the first Battn. of Guards, Some light Horse and the Artillery were ordered under arms and march'd immediately; an hour after the 2nd Battn. Rl. Wh. Fuziliers, Cornwallis's, London's, Effingham's and Lambtons; the two other Brigades and remainder of the light horse were likewise under Arms; but were some time detained; a large Detachmt. of Grenadiers being sent out by Col. Lambton to Forrage which were not yet returned. About three o'clock the whole march'd, The Grenadiers and light Horse bringing up the Rear and encamp'd on our old ground at Concales about 10 o'clock at night.

SUNDAY, 11TH.—The 4th Brigade and Light Horse embarked by about 11 o'clock, a very Great Rain this Night, the Grenadiers lay out, I never saw more Rain in the space of 16 Hours in my life.

MONDAY, 12TH.—The other 3 Brigades, Guards and Grenadiers embark'd this day.

TUESDAY, 13TH.—About 2 o'clock afternoone we could Perceive two parties of light Horse parading it over the Bay where we landed, and ten or Twelve Carriages, Cover'd with Hay, drawn by a large No. of Horses each, from which we suppos'd them to be Cannon. We saw their Centinals posted on the lines the 3rd Brigade had thrown up for our retreat.

WEDNESDAY, 14TH.—We could see a large No. of men as we thought levelling the above Works.

THURSDAY, 15TH.—Lay still at Anchor.

FRIDAY, 16TH.—Weighed anchor at 5 in the Morning at West. Blowing fresh. At 7 in the Evening anchored about 4 Leagues to the N.E. of St. Maloes. Hard Gales of Wind all night at N.W.

SATURDAY, 17TH.—At 5 in the Morning Signal for weighing stood in for the Bay of Concale again. Wind blowing hard at N.W. Still anchor'd in the Bay about 11 o'clock.

SUNDAY & MONDAY, 18TH, & 19TH.—Wind still at N.W. blows very hard.

TUESDAY, 20TH.—In the Afternoone the Rose frigate, Capt. Clive, was sent to Guernsey with an Officer of a Regimt. to get fresh Provisions.

WEDNESDAY, 21ST.—At 7 o'clock Weighed Anchor, Wind N.W. stood in close over to Granville. saw 2 Camps at a small distance from the Town, at 1 o'clock anchored 3 Leagues off St. Maloes; about 6 o'clock the Isis Man of War, with 3 Transports to take Troops in in case any accident happen'd to any one of the others, joinded us from England. An Hour after a flagg of Truce came out of St. Maloes and brought 5 prisoners who had stayed to long a Forraging, we Exchanged 5 of theirs.

THURSDAY, 22ND.—At Two this Morning anchor'd 2 Leagues of Cape Fochel again not so much to the Westward. As in

going to St. Maloes (on Sunday the 4th) at 7 o'clock. Wind West. The Isis left the fleet again.

FRIDAY, 23RD.—At 4 this Morning Anchor'd about 5 Leagues to the Westward, Jersey, at 8 weigh'd, very little wind at North, at 3 anchor'd at 3 Leagues westward of Jersey, between that Gurensey and at 8 weigh'd, wind N.E., stood to the N.W. round Gurensey into the Channel, the reason of our Anchoring so often was for Bennefit of the Tide, the Wind being Conterary.

SATURDAY, 24TH.—At 11 o'clock off Alderney, wind blowing fresh S.S.E., at 6 made Portland, Peveral Point and Isle of Wight 9 at night, Wind N.E. stood over to the French Coast.

SUNDAY, 25TH.—Squalls in the Morning from the N.E. but calm from 11 till 7, wind then at N. steering S.S.E. suppos'd bound to Haver de Grace, about 4 o'clock made Cape Barfleur about 5 Leagues distance.

MONDAY, 26TH.—Morning very foggy, clear'd about 11 o'clock, Found ourselves to the Eastward of Haver de Grace; stood along shore towards that place at that time a signal made for the Troops to Prepare to Disembark, lay too till 4 in the Afternoone. The Rose and Maidstone (sent express after the Rose) arived in the Fleet from Gurensey as did the Dilligence from England; with the agreeable news that Sr. Charles Hardy had taken off Louisburg a French Frigate of 30 guns and 13 Transports with Troops, Warlike Stores and Provisions. That also that place was greatly distressed and that our troops for the Expedition against it Sail'd from Halifax the 13th Ult. All these Circumstances put together we are in High spirits and great Expectations of Louisbourg being taken.

TUESDAY, 27TH.—Havre de Grace again, at 11, 5 Leagues from Havre. Orders from the Essex for the Troops to carry 4 days Provins. on Shore if ordered to Disembark. At 6 (having laid too till then forenoon) stood off again, Wind S.S.W.

WEDNESDAY, 28TH.—At 10 o'clock Cape Barfleur bore W.N.W. very little Wind N.N.E. very little wind day. Close hail'd to the wind till two o'clock in the Morning.

THURSDAY, 29TH.—At which time a signal to bear away, standing down the Channel at 6 o'clock anchor'd about a mile from Cherbourg, where fired at from several little Forts along the coast and from the Town, but seeing they were not Within distance they desisted in about an Hour, Orders were given for landing, the 1st Battn. of Guards with the Grenadiers of that Brigade were to Disembark first and order'd to be in the Flatt bottom'd boats by 11 o'clock at Night they were to attack some of the Forts that fir'd at us viz., Homet, Quarque, Ville, and two others not named, which when carried they were to Nail up the Cannon and

return to the strand to protect the Boats in Landing the Troops, the Bomb Vessels were order'd and went close in to the Town in the Evening, but the Wind soon after blowing very hard and continuing all night prevented the Execution of these Orders had they landed, which there was Occasion to believe impracticable from the Violence of the Wind from its being on Shore, a reembarkation was absolutely impossible, had they been repulsed and drove to that Necessity. The Troops however remained in the Boats all Night. It was said on board the Essex our descent was intended against Cain, the Capital of Normandy and not Haver de Grace, but the Wind blowing very hard at N. right on Shore, the Pilots thought it was unsafe for the Fleet to lay there, Expecting a change we return'd the next day but with us our old Wind with the same Violence which Oblig'd us finally to quit that Coast. His Grace the Duke of Marlborough, receiv'd a letter from the Secretary of State, that Prince Ferdinand had gain'd a Compleat Victory over the French the 23rd Instant, near Dusseldorf on the Banks of the Rhine.

FRIDAY, 30TH JUNE.—The Wind still blowing very hard at W.S.W. a signal for weighing, about 10 o'clock steer'd our course for the Isle of Wight.

SATURDAY, 1ST JULY.—Six in the Morning made the Isle of Wight anchor'd at St. Hellins at 9 at Night.

SUNDAY, 2ND.—Weighed anchor fell down to St. Hellins Bay there continued till the 4th.

5TH.—Weigh'd anchor the whole Transports fell down to Cowes and landed the 6th and Marched to our old ground, the Light Horse to theirs at Petersfield.

REGIMENTS AS IN BRIGADES.

First Regt. of Guards.	}	Brigade of Guards.
Coldstream Guards.		
3rd Regiment of Guards.		

Benticks.	}	1st Brigade of Foot.
Manners.		
Humes.		

Londons.	}	2nd Brigade.
Wolfs.		
Kingslies.		

Fuziliers.	}	3rd Brigade.
Lamptons.		
Hays.		

Effingham.	}	4th Brigade.
Richmond.		
Cornwalis.		

THE UNITED STATES *versus* MEXICO.

II.

(General Zachary Taylor's Campaign).

By T. MILLER MAGUIRE, LL.D., F.R.H.S., Member of the
Order of the Rising Sun of Japan.

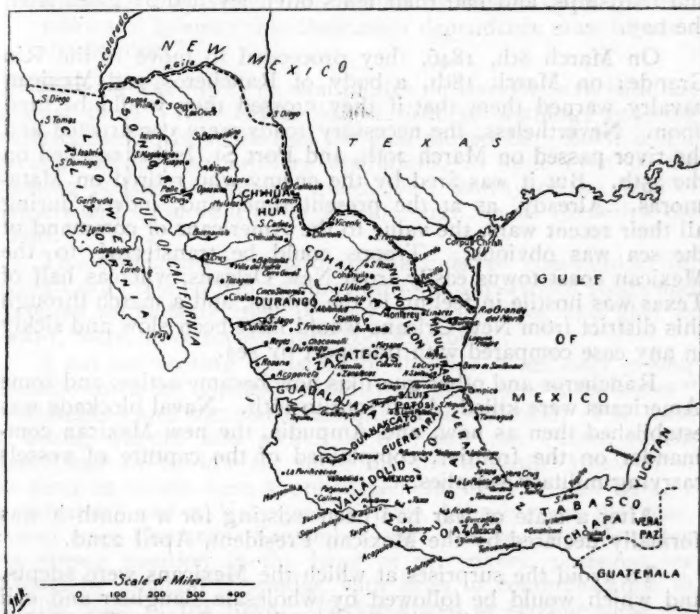
WE have already seen that the Mexicans bitterly resented the manner in which Texas was annexed by the United States, and that even General U. Grant had no hesitation in declaring that the United States attack on the Mexicans was most unjust and called for retribution, and, indeed, was indirectly the cause of the War of Secession, 1861, and of its enormous expenses and appalling loss of life.

But at any rate it was interesting and for the time somewhat instructive, and all the most celebrated Generals of both sides—Federal and Confederate—admittedly learned much of their art of war amidst the scenes of Spanish triumphs in the ancient realm of the Aztecs. However carefully one studies the war of 1914, so far we can find not one lesson in strategy or tactics, diplomacy, science of war or laws of nations, in the wanton and inefficient, hesitating and unskillful proceedings of the Washington Government about Vera Cruz. Their Monroe Doctrine has become not only an international danger, but a gross absurdity. With regard to foreign Powers, foreign citizens, and foreign commerce, the policy of President Wilson and Dr. Page since my last article has been that of a dog in a manger; as to Huerta and his rivals, nothing whatsoever of a satisfactory character has been evolved, and spasmodic murder, aimless and irritating, has characterized the feeble negotiations.

It were wasted time to attempt to develop any instructive article from the present campaign, so I must revert to 1845-7. The Mexicans of every type bitterly hate the Americans now, and there is no small danger of the whole of the Anglo-Saxon race suffering in consequence. The Spanish forgave the buccaneering acts against their coasts and robbery of treasure-ships by Hawkins and Drake in the days of Queen Elizabeth, and even of admirals like Anson, but the Yankee aggression has been provocative, and in the eyes of the Latin races, as of all fair military critics, quite unworthy in every respect of such a rich Power with such ample territories already. Why! the basin of the Mississippi alone could support in luxury twice the

present entire population of North America from the Rio Grande to the St. Lawrence! True, Mexico was about the richest State in the world, and each successive requirement of modern civilization—so called—such as oil, has increased the demand for its multitudinous and inexhaustible wealth; but surely the United States had more than enough and to spare without entering upon the most iniquitous raids on neighbours ever known since the days of Cortez and Pizarro.

SKETCH MAP OF MEXICO.



It is now also admitted that President Polk of the United States practically provoked the Mexicans into war in 1846, so that vast tracts of exuberant fertility and mineral sources might be available for the extension of negro slavery. Such is Professor Mann's opinion.

As for the Mexican President, he entered into the war, and was far from scrupulous, because the rage of his people at the misconduct of the Yankees could not be restrained, and his offensive advance was really the true defensive; from a strategic point of view fully as justifiable as the German advance into Bohemia, 1866, or into France, 1870, or Lee's advance into Maryland, 1862.

By the end of 1865 the Mexican President, Herrera, who was very friendly to the United States, gave way to General

Paredes, who was much less accommodating. A state of war practically prevailed owing to the presence of General Zachary Taylor's force near the River Nueces since August, and the new military ruler of Mexico refused to receive a general United States plenipotentiary till the Texas difficulties had been settled by a special Minister. Whereupon Minister Slidell requested the return of his credentials and retired to the United States.

While marking time at Corpus Christi on a low sandy plain, the forces of General Taylor were exposed to privations and hardships, and had their tents often levelled by gales from the bay.

On March 8th, 1846, they proceeded to move to the Rio Grande; on March 18th, a body of Rancheros and Mexican cavalry warned them that if they crossed they would be fired upon. Nevertheless, the necessary roads were constructed and the river passed on March 20th, and Port St. Isabel reached on the 25th. But it was fired by the enemy who retired on Matamoras. Already, as at the present time, and, indeed during all their recent wars, the value to the Americans of command of the sea was obvious. Troops could be transferred to the Mexican coast towns easily from New Orleans, whereas half of Texas was hostile in feeling to the troops, and a march through this district from New Orleans would have been slow and sickly in any case compared with transport by sea.

Rancheros and other guerillas now became active, and some Americans were killed, April 10th to 16th. Naval blockade was established then as now, and Ampudia, the new Mexican commander on the frontier, complained of the capture of vessels carrying military supplies.

After a state of war had been existing for a month it was formally declared by the Mexican President, April 22nd.

To avoid the surprises at which the Mexicans were adepts, and which would be followed by wholesale slaughter and evil practices not yet extinct in these regions, General Taylor improvised field fortresses—a system followed to an enormous extent a few years later in Virginia, and by the Turks in the Balkan Peninsula, 1877-8.

The guerillas still continued their operations about and behind Matamoras, and threatened the communications, while on the other hand, Taylor requested the neighbouring States to send reinforcements of volunteers, as cavalry operations of great rapidity on the enemy's part brought about a series of engagements in which the celebrated Texas Rangers won fame. The reconnoitring work was admirable, and in the first week of May the Mexican artillery was well used and the losses were considerable, while the Mexican infantry defended their well-chosen positions with a determination and resolution rarely surpassed even by Turks or Russians.

The American General issued an order, worthy of the British in the Peninsula, before the battles of Palo Alta and Resaca de la Palma. These combats were hand-to-hand fights; of course, we must remember that the weapons used, cannon and muskets, had not the range and effect even of the Crimean days. General Taylor's order was:—

"The Commanding General has every confidence in his officers and men. If his orders are carried out he has no doubt of the result, let the enemy meet him in what numbers they may. He wishes to enjoin upon the battalions of infantry that their main dependence must be upon the bayonet."

And he was right; he won battles on the offensive with one against three. But Taylor forgot little or nothing, ordering water-bottles to be refilled as the men moved on. Some of the cavalry actions and artillery operations, in spite even of the burning of the long prairie grass, were worthy of the days of Rupert and Cromwell, or of Marlborough, or of Frederick the Great.

The difficulties of guarding the lines of communication, though not quite so bad as since railways superseded roads and occupied myriads of men on 250 miles in 1870, and also in 1900-1, were, nevertheless very considerable.

I am not writing a history of the war, I am only giving lessons which the hopeless stupidity of our "men in the street"—strategists and tacticians—should make welcome. For want of boats, wagons and means of transport the United States Army had to be idle for three months opposite Matamoras. As soon as means were supplied General Taylor, with cavalry in advance, and a Volunteer division bringing up the rear, moved from Camargo, September 13th, and reached Monterey—a strong position in the bend of two rivers, prepared for defence by General Ampudia, with lines of communication to Saltillo, west of the town. Taylor aimed at seizing these by a main attack, while secondary attacks were to west and east of the town.

The main attack was received by a charge of cavalry; this began a battle which lasted till the 24th. The Americans, after repulsing the cavalry, advanced, carrying post after post in succession, and, after stiff street fighting, Ampudia and his troops, driven in on all sides into the main plaza, offered to capitulate. The Americans agreed to honourable terms and to the retirement of the troops with their arms to San Luis Potosi, where they were put under Santa Anna, who had been an exile for some time, but escaped with United States connivance, and after proposing to further their interests he now took command against them!

The Washington authorities disapproved of terms and ordered an immediate advance on Saltillo.

Saltillo was an important point, where roads converged, and for reasons of supply; Taylor occupied it in the middle of November. The important port of Tampico, of which we have heard so much lately, was taken by Commodore Perry about the same time. It made a convenient base for fleet and army in subsequent operations against Vera Cruz.

We have already seen how political intrigues interfered with Taylor's plans, and now half his army was diverted to Santa Cruz for General Scott's move to the capital. He could do no more, therefore, than guard Saltillo, and he arrived there February 2nd, 1847. Santa Anna learned all the plans of the enemy and the division of command in their forces, and therefore he resolved to move on and attack Taylor's weaker force; but very foolishly yielding to political pressure from the capital, he advanced without having provided proper food and clothing for the 300 miles advance in winter, and appalling hardships ended in the crushing defeat of Buena Vista. He lost one-fifth of his men by every misfortune incident to campaigning, and so he came to the fight in as bad a state as Bourbaki's forces on the Lisaine exactly 24 years later.

Taylor selected a strong position, only to be approached through defiles over high mountains, while his dispositions were admirable as against attack; he moved some troopers back to Saltillo on the evening of the 22nd, and was in rear of the enemy, while their cavalry under Minon was making a turning movement by the mountains to the east to cut off Taylor's retreat! In the battle 14,000 Mexicans came against 7,000 Americans, who fought gallantly from morning till dark. The latter had 16 guns under Bragg, and their action was at once independent and brilliant. But the Mexicans, in spite of the panic flight of recruits, kept pressing forward, driving the Americans from position to position. At last Bragg's battery came right up against the Mexican reserve, and without infantry to support it and at the risk of losing its guns, came rapidly into action, the Mexican lines being but a few yards from the muzzles of the pieces. The enemy halted at the first discharge of canister, but the second and third drove him back in disorder and gained the day. I may say that during the Mexican advance Napoleon's maxim as to deserts being far the worst obstacle to military operations, worse than any mountains or rivers, was fully realized. Without a battle Santa Anna lost 4,000 men out of 18,000 in his march from San Luis to Saltillo, and the American General very wisely refused to comply with the ignorant interference of the War Office, whose political chiefs wished him to push on at once from Saltillo to San Luis. Taylor told the administration that if they wished to capture the Mexican capital in order to secure peace they should advance by way of Vera Cruz—the very campaign that General Scott proposed, and which ultimately succeeded. (See May No. and Map p. 605.)

In regard to this point and the use of railways in war, it must be remembered that these have from the point of view of military science as many drawbacks as advantages, and Sherman destroyed with detailed ability the railway lines as he "went marching through Georgia" in 1864, and lived on the country in his front. But no doubt the topographical difficulties of a land campaign from Texas to the capital of Mexico would be less to-day by reason of railways leading south from the Rio Grande, but a railway in such a country, or, indeed, in the Balkans or in Persia, can never take the place of wagon roads with water at camping places for the advance of several army corps, or serve as a line of operations. Even the railway from the Rhine to Paris, after the fall of Strasbourg, required at least 12 divisions for its protection. True, that a well-found railway is an excellent "line of communication" by which an army at the front will draw supplies and reinforcements from its base and send back prisoners and sick and wounded. But a long line of railway passing through an enemy's country requires so many men to protect it (we all remember the railway line and block-houses during the march of Lord Roberts to Pretoria) that manifestly even now the best line of operations for the United States troops against the Mexican capital is that of Cortez and General Scott, from Vera Cruz.

Here, again, the command of the sea gives the invader an enormous advantage as to change of base, facility of supply, and, with large steamers, facility and secrecy and celerity of movement, as Wellington enjoyed in 1813, McClellan in 1862, and the Japanese in 1904. During the first phase of the war under consideration not only did the navy guard the army's transports better than any flying columns, or block-house system could guard a railway, it also blocked the mouths of the rivers by which arms and stores could be imported, or valuable produce exported, just as the navy altered international commerce by its blockade of Charlestown in 1862-3. It also threatened the enemy's communications across rivers, and it captured the city of Tampico.

In our remarks on this campaign, which must be short for want of space, it must always be remembered that the armies were small, not one as large as three modern divisions, Japanese, French or German; hence lines of supply, lines of retreat and flank tactical positions were not so vital, and mistakes were not so risky as they would have been in one of the Napoleonic wars, or in the Sadowa or Gravelotte campaigns. Moreover, the range and rapid action of modern rifles and artillery would have rendered personal efforts, such as after a discharge of pistols throwing them at the heads of the enemy, jumping horses over entrenchments, stabbing with long knives, point-blank discharges of cannon at infantry. Similar personal tactics were out of the question as long ago as Chanzy's fight at Le Mans, not to speak of Spion Kop or Mukden.

The victory of Monterey was very creditable to General Zachary Taylor,¹ though not such a brilliant triumph as that of Buena Vista over a more important personage, Santa Anna, yet the President, Polk, being determined to find fault with candidates for fame of the wrong party, minimized all the performances of General Taylor, as well as of General Scott. Polk disapproved of the liberal terms granted to Ampudia at the surrender of Monterey.

We prefer the judgments on such matters of well-trained officers on the spot to that of untrained sophists 2,000 miles away, and there is no answer to the reasons that the American Army was too small to invest the town and prevent the escape of the Mexicans by some mountain trails; the fighting was becoming like all street-fighting, desperate, bloody and protracted, and humanity counselled a truce and suspension of the assault; and as to eight weeks' armistice, Taylor was unable to go further in any case for lack of support, which was the fault of the administration.

As to Buena Vista, Santa Anna should have watched and attacked Scott, coming from Vera Cruz rather than Taylor from the Rio Grande, especially as he knew exactly the American plans; but this was also rather the fault of public opinion than his own bad strategy. Moreover, he was absolutely as certain, and so was every officer in the Mexican Army, of beating Taylor as Napoleon was of beating Wellington at Waterloo, and the victory would have been very decisive, as General Wilcox says. Had the Mexicans won Buena Vista, under the pressure of the excitement among voters that would have existed at the United States capital, a mere garrison would have been left at Vera Cruz to risk death from yellow fever ("the Vomito") and General Scott and most of his men would have been ordered back to the Rio Grande and the war prolonged for another year. Therefore we agree with the best Yankee writers that Taylor's operations were very creditable indeed, and they adhere to this opinion without in the least disparaging General Scott and his staff.

¹ Zachary Taylor was elected President after Polk, March, 1849.

SHIELDED INFANTRY AND THE DECISIVE FRONTAL ATTACK.

By MAJOR G. H. J. ROOKE, The Leinster Regiment.

THE achievement of the object a commander has in view when he decides to accept battle, will generally depend on the success of his decisive attack; the two most important modes of delivering such an attack are briefly outlined in Field Service Regulations, Part I., chap. VII.—102 (3).

(1) Success in battle may be sought by means of a converging movement of separated forces so timed as to strike the enemy's front and flank, or flanks, simultaneously, few if any reserves being retained in hand by the Commander-in-Chief; or:

(2) A part of the force only may be employed in a preparatory action while the commander keeps a large reserve in his own hands with which eventually to force the decision. In making our choice between these two general methods there are several considerations which must each be given their due weight, *viz.* :—

- (a) Resources, *i.e.*, mainly, the number of troops available.
- (b) Relative efficiency, compared with that of our possible opponents.
- (c) National fighting traditions, and temperament.

In the case of (a) the number of troops we should be able to put into the field within a fortnight of the outbreak of a European war is strictly limited, and would probably not exceed 150,000 men.

(b) Such a force, however well trained, and in this respect, owing to their longer period with the Colours, we may assume them to be superior to the conscript armies of the Continent, is not nearly numerous enough to admit of our employing the first method, that of surrounding an enemy by the convergence of separate armies which join hands only on the field of battle.

(c) On the other hand, the destruction of a more unwieldy opponent by a sudden blow at his heart, though (as often before) forced upon us by our inferiority in numbers, is nevertheless in keeping with the fighting traditions of

“An old and haughty nation proud in arms.”

In naval tactics it is quite familiar as Nelson's favourite manœuvre of “breaking the line,” which is, moreover, only a variant of our second method, the object being first to break the

opponent's front into two unequal parts, and then to surround and overwhelm the smaller portion before the other can come to its help.

It should be noted that the essential principle of this manoeuvre is to close with an enemy with the least possible delay, for it is only by close fighting that decisive results can be obtained sufficiently quickly.

Applying it to the present case we must recognize that, even on land the need for rapidity is much more cogent now than ever before, since wireless telegraphy, aeroplanes, and dirigibles, enable the chief commander, though miles in rear, to receive the news of any untoward event almost as soon as it happens. Apart from this, a preference for close fighting has always been considered a sign of moral superiority, and usually also of better discipline and higher military efficiency.

The use of missile weapons was, in classic times, as also on the Continent during the Middle Ages, actually to a large extent discouraged, for fear it might impair this offensive spirit.

Conversely, although morale and training for war may both have reached a high level, the lack of this instinctive tendency to close with the opponent will generally prevent any decisive success; as happened to the Boers on many occasions during the late war in South Africa, at Magersfontein, Colenso, Wagon Hill, etc. The change in Boer tactics affords us a specially clear example of this, for towards the close of the war, when in the case of the better disciplined commandos of De la Rey they had become veterans, and their opponents, being largely composed of mounted infantry, had ceased to use the bayonet, they began to make a practice of charging home, using as a substitute for *l'arme blanche*, fire delivered from the saddle at close range.

Without stopping therefore to consider the advantages inherent in method (1) we shall pass on to the discovery of the best means of "forcing the decision" advocated in (2) as being, for the reasons already given, more suitable to our resources, training, and national characteristics.

In Field Service Regulations, chap. VII—102, the method of launching this general reserve in a decisive attack against some point in the enemy's front, with the object of cutting him in two, is first dealt with, and while it is admitted that such a plan "may give great and far-reaching results," it is nevertheless rejected in favour of the attack against one of his flanks. The reasons given for this preference are, however, very significant, and it is the object of this paper to endeavour to indicate how it may be possible to remove the objections on which they are based, and so turn the scale in favour of the frontal attack.

In the present case, as in many other instances, the abstract terseness of statement characteristic of the Field Service Regulations, is apt to conceal something that must always be taken for

granted, *viz.*: that a flank attack invariably presupposes the co-operation of a frontal attack; and is consequently a combination of two interdependent attacks; whereas a frontal attack, by no means necessarily implies a related movement against the hostile flank.

The frontal attack has, therefore, to begin with, the two great advantages of simplicity and self-dependence; two of the most important factors of success in war. We shall now consider its objections, which are summed up in the above quoted paragraph as follows:—"The long range, accuracy, and rapidity of fire of modern weapons, reduce the chances of success of such an attack."

Stated in more concrete form, the problems we have to solve, therefore, are:—

(1) How partially to neutralize the effect of the defender's fire till adequate cover is available.

(2) How to obtain adequate cover with the utmost rapidity, so as to allow of the development of a covering fire sufficiently effective to enable the firing line to advance.

(3) How to ensure the continuous advance of the firing line at a maximum rate of speed, thus giving our attack to some extent the character of a surprise.

Incidental to these three chief problems, and of only slightly lesser importance are:—

(4) The supply of ammunition to the firing line over open ground, and within decisive range of the enemy's position.

(5) How to deal effectively with the enemy's machine guns.

As regards (1) our first and principal difficulty is the terrible accuracy and intensity of fire which can be brought to bear by the hostile rifles and machine guns, especially where the terrain being smooth and open, affords no cover. The fire of the enemy's artillery is assumed to have been sufficiently subdued before the attack can enter upon its decisive stage. The manner in which it is considered that (owing to recently changed conditions) this can be effected will be adverted to later.

It is clear that however much the attacking troops may be "trained above the fear of death," this of itself will not prevent their being struck by the enemy's bullets, and may not improbably even increase their losses, since such troops are likely to expose themselves unduly. We must therefore somehow render his fire ineffective, and this can only be done in two ways:—

(a) By disturbing his aim.

(i) By our own fire.

(ii) By increasing his difficulty of observation of target by frequent movement, invisibility, rafales of shrapnel, dense smoke, shells, etc.

(b) By interposing some form of cover, either natural or artificial, between ourselves and the enemy's bullets.

It may be conceded that the quickest results are most likely to be attained by an intelligent combination of both methods.

Method (a) is sufficiently familiar to require no comment.

Method (b) may be carried into effect by :

- (i) Instantly, or very rapidly, creating cover by the use of explosives.
- (ii) Obtaining the same result more slowly by the entrenching tool, which may, and generally would be used in conjunction with (i).
- (iii) Some form of shield or other portable cover.

As regards (i) the use of small charges of high explosive for instantly creating cover, does not seem to have hitherto attracted the attention it deserves, though it has been proposed by firing salvoes of common shell to produce shell craters which could be utilized as cover during the advance. This is a clumsy, ineffective, and very wasteful method of attempting what can be better done by the soldier himself if provided with the necessary materials, *e.g.*, dynamite cartridges.

In Western North America it is a common practice to instantly produce long ditches, extending in some cases right round a field by the successive, but practically simultaneous, explosion of small charges buried at the necessary intervals, which detonate each other.

The difficulty of doing this under fire has of course to be taken into account, together with the unavoidable proximity of the charge to the man firing it, but by interposing the portable shield hereafter to be described, it should not be difficult so to use dynamite cartridges, or, in emergency, even hand grenades as to obtain cover much more quickly than by the slow process of digging. In any case it is only a choice of risks.

(ii) It is taken for granted that at the moment of launching the decisive attack—the crisis of the battle—the intensity of the enemy's fire will be such as to cause, at decisive range from his position, demoralizing loss to a firing line extended to one rifle per yard, over open and level ground without cover. Whether such a firing line could succeed in maintaining itself (without even attempting to advance) would depend on the rapidity with which cover can be obtained. This will usually depend, in its turn, on the easiness of the soil, but at the most favourable estimate, it will take at least ten minutes to provide enough earth cover for the purpose.

This amount of cover will vary as the morale of the troops engaged, but for convenience of definition, may henceforth be described as the minimum, or "initial," amount.

The problem still remains how to obtain this, while at the same time reducing the inevitable interval of complete exposure, as far below ten minutes as possible. Whatever be the method we decide to adopt, it must be such as will permit of our successively increasing "initial" cover until "adequate" cover is

obtained. "Adequate" cover may for our present purpose be defined as the minimum amount which will induce troops of average morale, not only to maintain their position, but also to keep up an effective fire.

As it is obvious, that enough portable cover to fulfil the definition "adequate" cannot be carried on the person of the soldier, we are now forced to the conclusion that more than one method of protection will have to be resorted to.

The problem will only be solved if "initial" cover can be obtained instantly, and "adequate" cover within such time as would normally be needed by the enemy to get the range.

Now, "initial" cover can only be instantly obtained, by the use of some kind of portable shield, which must also be carried on the person of the soldier. But the weight now carried by the soldier in action, including ammunition, amounts to 55 lbs., which cannot be further increased without injury to his efficiency. Our only means, therefore, of meeting this fresh difficulty is to make a secondary use of something he already carries.

This brings us at last to the point, for the only article which can be thus used effectively is the entrenching implement.

The weight of the 1908 pattern implement, including its carrier, is 2 lbs. 8 ozs. The superficial area of the spade portion, which is shaped like an irregular pentagon and slightly curved, is 25 square inches. It is made of cast steel, averaging one-eighth of an inch in thickness.

Undoubtedly, for its weight, the best implement with which our troops have as yet been equipped, and specially adapted for digging when in a prone position, and valuable as it certainly is, it is nevertheless hardly of sufficient use to justify the weight carried, being neither heavy enough nor large enough for the purpose for which it is intended, *viz.*: the rapid excavation of "adequate" cover under effective fire of the enemy.

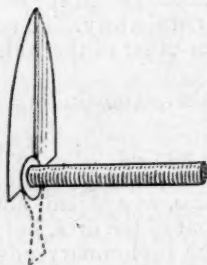
This insufficiency is made more marked by the increased accuracy of fire, and greater penetration, incident on the employment of the pointed bullet, with its flatter trajectory. To remedy this state of things we must adopt one or other of the following alternatives:—

- (a) Discard the implement altogether, substituting some other method or appliance.
- (b) Increase its weight and size, and so extend its efficiency, by employing it in addition to its primary use for digging, in a secondary capacity also, as a shield, not only when stuck in the ground in front of the firer, but while carried on his person during the preliminary advance.

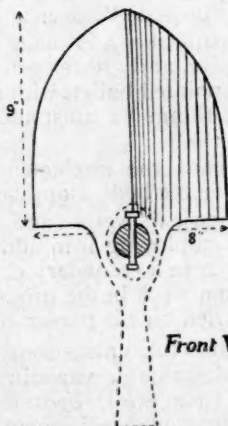
As regards (a), unless some material, *e.g.*, the new alloy of steel and aluminium, vanadium steel, both lighter and less penetrable than steel, becomes available, there seems little chance of improved efficiency without increased weight, and



MARCHING ORDER WEARING IMPLEMENT.



Side View



Front View

methods of obtaining cover other than by digging, are open to a separate set of objections.

In the case of (b), increased weight would certainly give the necessary efficiency to the implement considered in the capacity either of a tool or a shield: in the latter case, by increasing the size of the protective area, in addition to rendering it proof at any but the shortest range. We must now decide:

- (i) What is the minimum increase of weight which will satisfy our requirements.
- (ii) How can this additional weight most easily be carried by the soldier.

In regard to (i), it should not be necessary to increase the weight beyond what may be required for digging purposes. The two most serious defects of the present tool are its lightness, and its wooden handle; to correct the latter, a hollow steel helve, preferably of helical spiral tubing, can be substituted. It would also require to be of larger diameter than the present wooden helve, and with a solid head.

For the blade, that of the ordinary shovel or turfcutting spade gives us the limit of size required, while the length of the pick need not be increased, as the extra weight behind it will bring its efficiency up to the maximum obtainable when the digger is in the prone position. The most useful shape will be as shown in the accompanying diagram; it should be only slightly convex and not too pointed. Made of the best steel plate, $\frac{3}{16}$ inch in thickness, it would, if stuck in the ground at a slight angle, be proof at 250 yards (*vide* "Manual of Military Engineering," page 8).

It has been found by experiment that under similar conditions even the present implement (only $\frac{1}{2}$ -inch in thickness) will resist the bullet now in use at a range of 300 yards. The pattern illustrated, when stuck in the ground as far as it will go, gives nine inches of cover over eight inches wide. The weight of such an implement in its carrier, exclusive of the helve, would not exceed 3 lbs. 12 ozs. In view of the advantages to be gained this is not excessive, and it is further proposed to carry it in such a position on the soldier that the added weight may be neutralized, in helping to maintain the balance of the pack. The most suitable manner of doing this must now be determined.

It has long been evident that the present method of carrying is not satisfactory, for in spite of the webbing cover, the raised central portion of the implement chafes and bruises the soldier's right hip. This is a most undesirable state of affairs, especially for men who have to sleep on the ground, when the hip bone in its normal state generally needs special accommodation.

In the opinion of the writer, the best method of carrying the steel head must be decided by the answers given to the following questions:—

- (a) Where will the weight be least felt, *i.e.*, where will it best act as a counterpoise to any onesidedness in the balance of the equipment?
- (b) Where will it also afford the greatest protection to the wearer?

Most patterns of equipment, and the present one is no exception to the rule, are balanced on the assumption that the wearer's pouches are always kept full of ammunition, otherwise, especially after doubling even a short distance, the belt manifests a distinct tendency to lift, and immediately causes restraint of the man's breathing. Nothing is more exhausting than such restraint, and any additional weight sufficient to counteract this tendency, would hardly be felt in comparison.

If then, the implement be carried attached to the belt, with its central line immediately behind the buckle, its weight will compensate the alteration which is bound to occur as the pouches are emptied during the advance. There is besides, another advantage in this arrangement, since the equipment is much steadied by tightening the belt. But as things are at present, to tighten the belt to any useful extent, at once seriously interferes with the soldier's comfort, as the extra pressure bears rather on the stomach than on the sides and back. Not so, however, when, as in this case, it is tightened over a curved steel plate; then, the pressure being equalized and distributed all over the abdominal area, is in fact a positive gain, helping, as it does, to force the blood through the system.

In the case of (b), we have also to consider how, when carried, it may afford the greatest protection to the wearer. It is therefore an important point in favour of this way of carrying it, that it forms, what is to all intents and purposes, a breast-plate, for while the slightly convex blade of the implement covers the abdomen, the pick end resting upon the sternum, also to some extent, protects the heart.

It is well known that abdominal wounds are generally more dangerous than others, more painful, and require longer and more careful treatment. To reduce the number of such casualties will undeniably increase the general efficiency of the troops engaged in a measurable degree, besides favourably affecting their morale. The accompanying plate shows the proposed method of carrying—the helve would continue to be carried as at present, attached to the scabbard of the bayonet.

Having now indicated, how, by the use of the implement as a shield, "initial" cover can be immediately obtained, we may pass on to the consideration of:

- (2) How to obtain "adequate" cover with the utmost rapidity, so as to allow of the development of a covering fire sufficiently effective to enable the firing line to advance.

Without entering deeply into the psychological aspects of the case, it will be admitted by anyone with the requisite experience, that a firing line exposed to a fire under which it can scarcely maintain itself, is unlikely to attempt to advance. The immediate object of providing "initial," cover as described above, is to afford such sufficient protection, as will enable them to dig themselves in, *i.e.*, increase the cover up to the "adequate" standard. When this is reached it may be expected that the increased effectiveness of their fire will permit of the advance being continued in the usual manner, by short rushes.

The importance of the principle of mutual support and covering fire, is now so generally recognized, that it will here be treated as axiomatic, and as the basis of any and every method of conducting an attack across open ground, within effective range of the hostile position. It also generally implies the advance of the firing line by alternate portions.

We must now decide on the best method of transforming "initial" into "adequate" cover without at the same time depriving the soldier of the "initial" cover already afforded by the implement stuck in the ground in front of him. This seems to imply that he must carry a second one to dig with, an arrangement which would increase his burden to an impracticable extent. The principle of mutual support and alternate advances, however, comes to our aid in this also, and suggests a way of circumventing the difficulty. As an example, let us take the case of a section in the firing line, whose next advance will bring them into the decisive zone.

The even numbers, or rear rank men, will transfer their implements to the odd numbers, who will then rush, covered by the fire of their comrades. Each of those rushing, is wearing his own implement, while he at the same time carries the other, ready for use, in his left hand, like a shield. Throwing himself down at the end of a rush in the usual way, he drives the pick end of the tool into the ground in front of him, and, fitting together his own implement, proceeds to dig behind the cover thus improvised. But this is not all, for he also has then to make a second shelter for his even number, altering the position of the shield accordingly. As soon as this too is ready, at a signal, usually the next rafale from the supporting guns which smothered that portion of the hostile trenches opposite them in a cloud of bursting shrapnel, the even numbers rush, covered by the fire of the odd numbers, and throw themselves into the shelters which they find ready for them, each with its shield in front. At the next rafale, it is now the turn of the even numbers, who, therefore, seizing their comrades' shields as well as their own, repeat the process. We are now up against our third problem, *viz.* :—

(3) How to ensure the continuous advance of the firing line at a maximum rate of speed.

Here comes in the psychological factor, for this advance of the even numbers, *ipso facto*, deprives the odd numbers of the head cover afforded by their shields. This leaves them not only almost unprotected, but also without any implement to improve such cover as still remains.

In such plight, each of them has every incentive to advance once more, the moment his even number has got a shelter ready for him. The supports, as they come up, now find a series of shelters ready dug, and have only to stick their shields in front of them as head cover. A further advantage is that, the greater the number of casualties, the more implements will be available for use by the supports and reserves as they arrive.

The implements when used as shields, would, normally, be left in their webbing carriers, which could be stained to match the colour of the background before going into action, by being rubbed with the end of a charred stick, or rolled in the mud, while in the case of a green or neutral background, no change would be necessary.

We can now proceed to deal with the first of the two incidental problems, *viz.* :—

(4) The supply of ammunition to the firing line over open ground, and within decisive range of the enemy's position.

It may be granted that the rapidity of the advance will largely depend on the volume of the covering fire, which, in its turn, can only be maintained provided fresh supplies of ammunition can reach the firing line from the rear. The rapidity of fire of magazine rifles has in recent wars caused this difficulty to become acute. Various means have been suggested and employed, such as throwing ammunition up by hand, having it brought up by the supports, etc. Provided always that the hostile fire is not too severe, these methods may be practicable, but when, as at Modder River, it is not possible for a man even to raise his water-bottle without getting a bullet through it, the arrival of the supports burdened with an extra load of cartridges need not be expected, since it is only under a heavy covering fire that they will be able to advance at all.

It has been found, however, that an adequate supply can be dragged up by ropes where the ground is hard, level, and entirely denuded of cover. Some such expedient will no doubt suffice, if a means of getting the rope up to the firing line can also be provided.

The situation is analogous to that of throwing a life-line from the shore to a vessel in distress, a service often efficiently carried out by means of a rocket, which is also quite portable enough for use for a similar purpose under the circumstances we are now considering. By its means, a line could be thrown from in rear, over any part of the firing line, and supplies of ammunition in suitable carriers, easily hauled up and distributed along the front as required. The rockets and ropes might be

carried by the machine-gun detachments, who would be trained in their use for this purpose.

Our final problem now confronts us :—

(5) How to deal effectively with the enemy's machine-guns.

Upon the destruction or disablement of the hostile machine-guns, our own will then be able to devote their attention to the opposing infantry holding the trenches, upon whom, the effect of this fresh accession of fire will—as often happened during the Manchurian War—probably be decisive.

This view receives additional confirmation from the high value placed by the Japanese on these weapons, for while in our text books each machine-gun, regarded as a unit of “condensed infantry,” is estimated as only equivalent in fire effect to 30 rifles, the German compute it at 120, and the Japanese themselves at no less than 200.

Under these circumstances it is needless to dilate on their immense utility to a small but highly-trained army such as ours, which even in a decisive attack, cannot afford casualties on the same lavish scale as the huge hosts of the Continent.

It seems generally to be inferred, that the task of silencing the hostile machine-guns may be left to our own artillery : but it is very doubtful, however, whether the latter will be able to do this effectively, as the machine-gunner is well aware of the danger of exposing himself. In the case of an important position intended to be held to the last, such as the one we are considering, it may be anticipated that suitable cover and alternative positions will be available for the defender's machine-guns, so as to minimize the risk of their being prematurely put out of action by the high explosive shells from our field howitzers. Being essentially “an arm of opportunity,” they would be withdrawn under cover, and kept mainly for critical moments, when, for instance, a longer or denser rush than usual of the firing line offers a specially favourable target for traversing fire.

It is plain that if thus handled it would be difficult for the attacking artillery to deal with them ; consequently the task must be carried out by troops specially detailed for the purpose, preferably by the opposing machine-gun detachments.

The chief advantages and disadvantages of the machine-gun are all comprehended under one primary consideration, *viz.* : that it is a machine.

We must see how this fact can be utilized for our purpose. A very slight injury to its mechanism will put such a weapon permanently out of action ; it is consequently provided with a shield, which, although sufficient to protect it from shrapnel bullets, would not prevent its being adequately damaged by even small high explosive or pom-pom shell. For this and similar purposes Continental armies have adopted Coehorn mortars, which can be served from a reasonable distance in rear of the

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firing line, and with proper observation of fire might attain the object in view.

A recently patented rifle-thrown hand-grenade (the Marten Hale) seems, however, more likely to meet the case, since it is very much more portable, and more easily directed, although not available beyond 500 yards.

Without going into details, it is sufficient to say that these hand-grenades are attached to a metal rod fitting into the muzzle of the rifle, and are discharged in the same way as an ordinary cartridge. Bursting on impact into a large number of irregular segments they are capable of blowing a hole clean through a $\frac{3}{8}$ -inch steel plate. It looks, therefore, as if this were just the instrument for the purpose, as it could be employed by our detachments who would be near enough to the firing line, and also being specialists, would be more likely to pick up the exact position of the hostile machine-guns than other troops. A single hit from one of these grenades, which could be fired in volleys, might succeed in putting a machine-gun out of action, and a detachment carefully trained, and experienced in their use, would very soon become experts at the work, and attain results more quickly.

We have now dealt successively with the more pressing problems, which constitute the chief objections to the decisive frontal attack, and which must be solved, if such an attack is to be pushed home over open and level ground, without incurring the excessive loss, and inevitable delay, at present imposed by the defender's rifle and machine-gun fire, upon attackers initially destitute of cover.

In conclusion it may be well to briefly summarize the successive phases in the progress of such a frontal attack, and also to advert more fully to one or two cognate matters, which have already been barely noticed in passing.

It will be remembered that it was premised, that our artillery had subdued the fire of the defender's guns before the decisive attack was launched. But to do this it will first be necessary to locate them, which, in the case of dispersed artillery employing indirect fire from alternative positions, has hitherto often been found impracticable. With the advent of the dirigible, equipped with wireless installation, a means has now been discovered by which at least this initial difficulty may be obviated.

For an observing station in a dirigible will admit of the required observation and direction of fire, thus giving back once more to the numerical superiority of the attacking artillery its former preponderance as a decisive factor in the artillery duel.

We may now recapitulate:—

First Phase.—Under cover of the artillery preparation the decisive attack is launched, and progresses till effective, and finally decisive ranges are reached, when;

Second Phase.—Both the field and heavy batteries must devote their whole attention to the defender's trenches. The firing line, strengthened by its supports and reserves, advances by rushes as already described, a rafale of shrapnel giving the signal for each.

Third Phase.—As soon as most of the enemy's machine-guns have been silenced, our machine-guns, which may for this purpose be brought up almost into the firing line itself, take the place of the supporting artillery (which now sweeps with its fire the ground over which the enemy's reserves must pass) and begin to play on the defending infantry in their trenches.

This should be the concluding phase of the struggle for fire superiority, permitting the assailants to gradually close in to charging distance.

The final impulse must come from the firing line itself, which, divining by a collective intuition, a sort of *sentiment du fer*, the favourable instant, hurls itself forward to the assault.

SEA-POWER AND NAVAL STRENGTH.

By VICE-ADMIRAL FREIHERR VON MALTZAHN.

(Translated and abridged, by permission, from the paper contributed by him to *Deutschland unter Kaiser Wilhelm II.*, published, price £2 10 0, by Messrs. Reimar Hobbing, Berlin).

THE writer begins by remarking that commerce and shipping, the possession of colonies and so forth, all confer upon a State a certain degree of sea-power, provided it possesses a sufficiently powerful fleet with which to protect them. The whole being of a State rests upon power, power, moreover, in the military sense, if it is to maintain its due position among other States. A fleet, then, stands out in the foreground of any presentment of sea-power as a necessity of State. The German people had, however, for long failed to recognize this elemental fact, but history will record how much has been done during the reign of William II. to re-awaken his nation to its needs and to impress the accomplishment of them upon foreign peoples and governments. The basis, then, of the creation of the German naval strength lies in the recognition of maritime interests and the assumption by Germany thereby of the position of a world-power.

Admiral von Maltzahn reminds his readers of the immense difficulty which was experienced in educating the German people to the preparation for realizing the need for the Navy Bill, and of impressing upon all that ships must be so built and manned as to be at all times ready for modern naval war. He then proceeds to recall the different events which were contemporaneous with the beginnings of a German fleet or fleets, and describes the development of German naval power. He passes in review the varying experiences of naval construction from the time of the Crimean War; the importance which was in turn ascribed to gun, armour, ram and torpedo; the differences of opinion as to the value of special types of ship, resulting in a remarkable divergence of views in regard to naval tactics. At first the development of a German, or, more strictly speaking, of a Prussian Navy, lay in the creation of coast-defence vessels, but in the naval estimates for 1863 and 1865, provision was made for the building of large armoured ships to take their place in the line of battle; the inauguration of the naval station of Wilhelmshaven in 1869 gave a fresh impulse to the growth of the young navy; and this was assisted again by the creation of the German Empire, although it

cannot be claimed that any increase of the navy was then made commensurate with the growth of Imperial obligations.

The end of the war of 1870 saw, at any rate, the close of the separation which had up to that time been noticeable in the Navy between command and administration. The head of the new central organization, the Imperial Admiralty, was General von Stosch, whose naval plans, laid before the Reichstag in 1873, endured in their spirit up to the introduction of the Naval Bill now in existence. It was perhaps only natural that Germans, realizing the extraordinary successes won by their land forces alone, scarcely admitted the need for the co-operation of a fleet; the projected increase in the navy was negatived, the number of ships to be built was cut down, old types of vessels were counted in the strength of the battle-fleet, and there were signs of an inclination to go back to the construction of mere coast-defence vessels. There was a very general inability to understand that the command of the sea means the denial to an adversary of all that of wealth and food supplies is brought him from overseas. Actually, the creation of an Empire did, it cannot be denied, push into the background all basic ideas of the value of naval power.

Under the second head of the Admiralty, General von Caprivi, a change began to be apparent. In a memorial published by him in 1883, he expressed clearly the ideas of the proper uses of naval power, while four years later he wrote urging that Germany should no longer maintain a fleet which ranked her no higher than naval Powers of the second class—words which the Colonial Policy initiated in 1884 in Germany had done much to impress upon the people of the Fatherland.

It was at this period, says the author, that Great Britain began to regard the infant growth of the German Navy more with surprise than disquiet, but it was not long, so he assures us, before the disapproving expressions heard in England, the propaganda which was preached in that country, made it clear that any further expansion of Germany's oversea interests could only be possible when supported by an adequate naval strength. At the same time, Germany no longer held the same assured position as a Continental Power that she had occupied in the two years immediately following upon the war with France. At the time of the Berlin Congress of 1878, German influence in Europe was at its zenith, but the result of the Congress was to disturb German relations with Russia, to re-awaken in France the idea of the *revanche*, and thus, despite the alliance made in 1872 with Austria, there arose a threat of war on two frontiers, one which was intensified during the years from 1884-8. Then began the idea of increasing the strength of the army and of materially adding to the size of the fleet, although there was at this period, as the author avers, no idea of any arming against England. Caprivi was still, however,

unwilling, while there was so much difference of opinion in regard both to capital ships and naval tactics, to indulge in experimental shipbuilding: "a fleet such as ours," he is reported to have said, "cannot permit itself the luxury of disappointing experiments; we can venture but little in the way of ship-construction," and he was inclined to think that it might be better if Germany dabbled only in small ships and torpedo boats.

Meanwhile England had led the way in the building of armoured ships, since the twinscrew had added to their handiness, while improved engines had increased their speed; the use of compartments and of torpedo nets had decreased the risk from torpedos, the old danger of the ram was counteracted, and armoured ships themselves adopted the torpedo as an arm of offence. The modern fighting ship now united in itself the three weapons heretofore distributed among ships of special and varying types, and to it was restored ability to keep the sea and the service of general utility of which the new views as to naval warfare had seemed to threaten at one time to deprive it. This new superiority was only to be obtained by an increased displacement and at an enhanced cost. Germany's armoured ships at this epoch, however, were out of date, and there were not even so many of them as had been budgeted for in 1873. The loss of the "Grosser Kurfürst" caused the building programme for 1878 to be accelerated, but otherwise there seemed no idea of meeting, by increased naval activity, the unsatisfactory political situation of which mention has above been made. The armoured ships of the "Siegfried" class, then put under construction, seemed to tie the German fleet more than ever to the coast. Only in one respect did the two earlier chiefs of the Admiralty deserve well of the fleet they controlled; they spent large sums, comparatively, on torpedo boats. These could not of course take the place of the armoured ships which were not in existence, but they at least constituted a technical, organized, tactical element, forming the kernel of a fruition of value for the German Navy. They had, however, no High Sea Fleet on which to base themselves, they could not develop beyond a certain point, they were unable to study combined tactics to meet and combat an enemy.

In 1888 there was no such thing as any tactics of the sea-fight, either in foreign navies or in ours. There was nothing further than a general leading of one fleet against another, the frontal attack and breaking of the line, leading to the *mêlée* and the individual combat of ship against ship; there was no organization of the simultaneous employment of gun, ram and torpedo; and weighty opinions voiced the view that formations should cease so soon as the guns began to speak, and from 1874 on, this course of the sea-fight was officially laid down. A fear then began to set in that a commander who thus throws the dice must therefore abandon all control; also a general

mêlée of this kind could hardly be part of a peace-training: and a reaction set in. Naval officers doubted that such complicated instruments of war could then be usefully employed, but it was not an easy matter to evolve anything better. In the winter of 1887-8 General von Caprivi summoned a council of naval officers to discuss this question, and all were unanimously of opinion that the formation, and with it the full development of the gun, should be preserved as long as possible; but how this was to be effected, while ram and torpedo did their share of the work of destruction, was not then established.

Soon after the Emperor, William II., ascended the throne, General von Caprivi asked to be allowed to resign his post, and with his departure there was no official appointed who combined in one person the whole control of the Navy. The senior naval officer, Vice-Admiral Count von Monts, was called into council, and was ordered to devise an organization, again separating command and administration. As a result, in the spring of 1889, the "Reichsmarineamt" and the "Oberkommando der Marine" were instituted. The Emperor nominated himself head of the Navy, and to assist him there was created a Naval Council.

At this transitional period occurred the change in our shipbuilding policy. It was decided to build four large armoured ships, to build them quickly and simultaneously, and to make them the basis of a modern battle-fleet. They were, however, far more than that; they marked the change in what the Germans call "Weltpolitik" and paved the way for the acceptance of the Naval Bill of 1890, since, as was the cry in Hamburg in October, 1889:—"our sore need requires a powerful German fleet."

Admiral von Maltzahn quotes remarks made in 1889 by Admiral Colomb as to the absence of any real study or practice of naval battle tactics, and says, "how could the German Navy expect to effect anything when so large, so experienced and so old-established a Navy as that of England, was in the position described by Admiral Colomb"? But Germany, since the days of General von Stosch, had maintained practice fleets in being, and had held naval manœuvres before other Admiralties had organized anything of the kind. But with short service crews and only a very limited period for manœuvres, these had in Germany been confined mainly to actions off harbours and the estuaries of rivers. Actions in open waters, fleet actions, had been rarely if ever practised, and when the manœuvre period was over ships were laid up and crews re-distributed for the winter. As matters were then organized, had war broken out during the manœuvres, mobilization must have commenced by making up ships' companies out of combined serving men and reservists. That is to say mobilization really began with demobilizing.

Despite these unfavourable conditions the German fleet is claimed by Admiral von Maltzahn to be the very first which really attempted, and on right lines, to work out in peace a true solid foundation for the tactics of battle to rest upon. He specially mentions the good work done in 1889-91 under Vice-Admirals Knorr and Deinhard. It gradually came to be recognized that the tactician, as well as the constructor, should be a consultant in the development of the fleet, and in all that of organization and technics were bound up in it.

Then in 1892 manœuvres on a really large scale were initiated. The "Oberkommando," the present Admiral Tirpitz being then Chief of the Staff, undertook the direction of manœuvres. It speedily became clear that the individual ship and its crew must be moulded the more closely together, the larger the war-unit to which they belonged, and it then became the custom to keep the important portion of the battle-fleet as long as possible in service in the particular combination to which it had been allotted for war. At this period the German fleet had "a bad time"; in the search for a school of tactics, the units of the fleet had to play many parts; many mistakes were made, much was learnt and unlearnt, but the German fleet, which in actual numbers of ships was far behind other naval Powers, was soon ahead of them all in its tactical development, and systematized the *artilleristische Linientaktik* which was shortly introduced in all the great navies.

Everything centred round and was based upon this tactical development; the strategic employment of the battle-fleet, designing of ships, their distribution into fleets, the practical division of the manœuvre period for the training of the newly created active squadrons and divisions, the drawing up of orders, and the actual preparation for naval warfare. Improvement was very gradual, difficulties were recognized and overcome, manœuvres every year assimilated more and more closely to the reality of war; leaders and subordinates gained confidence in themselves and in one another, and dangers were not despised, but men rejoiced and took pride in overcoming them.

From the manœuvres it became ever clearer that a fleet which, as was the idea in 1888, steamed straight at its opponent to break his line or enter upon the disorder of the *mêlée*, did so at great risk. Where both adversaries recognized their gun-power the danger field of the torpedo and of the ram was wiped out; they knew that it was no more a question of laying one ship alongside another, but of developing gun-power to the utmost. Battle-fleets follow ship after ship in line ahead; there is no more breaking up into disorder, but the maintenance of the line formation is, as of old, the battle principle and its exponent is the modern ship of the line.

While, however, German naval men were learning how a modern fleet should be handled in war, the Reichstag was

doing little towards the increase of the fleet itself. The Secretary of the *Reichsmarineamt* was Admiral Heusner; he brought a memorial before the Reichstag in 1897 which did little more than ask for the fulfilment of the requirements brought forward in 1873, with certain proposals for improvement. He explained what other Powers had done for their navies since 1890—especially England, the United States, and Japan, and it is significant that comparison was now for the first time made between the naval requirements of England and of Germany. Whether this comparison was made of set purpose or not, Admiral von Maltzahn offers no decided opinion, but he asks—"was it now recognized that the sea was the world's highway, and that England blocked the road with her powerful fleet and with the practical monopoly of the trade of the world which she was in no way inclined to surrender"? Now began the real growth of that fleet which was to secure Germany's position in the world, and which, should such be unavoidable, was to be ready to engage even the fleets of England. Here, then, began the threads which spun the web of the German Navy Bill.

The author urges the point that the growth and development of the German Navy was inevitable, that it emerged naturally from the events which made Germany an Empire and one of the world Powers; and that to some extent the difficulties of the political situation as regards England, which have resulted, have been caused by what may almost be called a gradual accumulation of circumstances. In proof of this contention he reviews the history of the Nations since the close of the Napoleonic wars. At that period England had no rivals as Mistress of the Seas and as general carrier for all other States; all rivals had one by one been crushed, and, directly by land, and indirectly by sea, had the island kingdom impeded the commercial development of other continental nations. The gulf between the agrarian proclivities of the continent and the commerce and industry of England had so widened, that it may truly be said that in England alone did industry, in the sense of the production of manufactures, really flourish; the long land wars had further so impoverished the Continental States that there was no capital for the establishment of industries on the grand scale.

England had also, it is true, contracted huge debts to carry on war herself and to finance her allies, but she had warred more with money than with men, and by this means also she had drawn more commerce into her own hands, the fruits of which she enjoyed right up to the middle of the 19th century. England was the workshop and the carrier of the world; other countries produced raw materials and handed them over to England for return in the shape of finished articles. There were no fleets but those of England; the sea seemed to exist merely to serve and protect her.

But as other nations gradually recovered from the fatigue and impoverishment of the long years of war, their peoples also became industrial; they engaged in maritime commerce, acquired colonies, and were favoured thereto by the increased facilities for national inter-communication due to the development everywhere of railways, steam-shipping and telegraphs. It was natural that all fashioned their commercial methods on those of England, and recognizing how dependent commerce on the large scale was upon the ocean waterways, they all became—more or less—maritime powers, their commercial existence depending upon the sea. While the well-being of a nation rests, as heretofore upon the land—whether by reason of mineral wealth, natural products, or of the value of manufactures—the methods of commerce, of national trade, make it impossible to exist without the ocean ways and all that is carried upon them.

The Admiral now discusses the position of the States concerned with inter-state commerce in regard to war. For England her fleet preserves her shores inviolate, but in the case of continental nations territory and home-trade can only be guarded by a land-war; inasmuch, however, as loss of sea-commerce brings practically all trade to a standstill, the whole of any country exists by the sea and secures its existence by naval warfare. When an enemy blockades our harbours, it is not our coasts alone which suffer damage, but the whole country; and while the enemy's ships sail no further than the ocean limits, the mailed hand stretches over the whole territory and knocks threateningly at the door of the merchant's office, at those of manufactories far in the interior, at the door of the workman. Continental States have seen this vulnerability to naval attack draw ever nearer to them; they realize how open they are to injury by England's chief weapon, her Navy; and they recognize that unless they are only to exist by the grace of England, they, too, must build their navies. It was England, declares Admiral von Maltzahn, which first drew the lesson from the new situation which had been created, and began the race in armaments. She decided to forestall all rivals who should build fleets or add to those existing, and in 1889—before France had begun to recover from the enfeebling influences of the *nouvelle école*, before Germany, by building her four "Brandenburgs," had commenced creating battleships, when the United States were only launching their first iron-clad—England, by passing her Naval Defence Act, at once assumed a great superiority over all other navies and spent 21½ million pounds on ten battleships, 42 cruisers and 18 destroyers. Germany was one of the first to take up the challenge and enter into the commercial rivalry with England, with the intention of capturing some of the trade required for her fast increasing population, and for the expenditure of the wealth acquired during long years of peaceful development. England watched this

development with jealous eyes, "while in Germany we daily recognized the increasing urgency to prepare for ourselves a protection if we were not to risk a danger."

The gradual acquirement of colonial possessions went on, and in the Cameroons, Samoa, and in East Africa, the fleet, by the work of its landing-parties, quelled insurrections and made the ways smooth for our trade; in 1890, however, there arose a question of demarcation of frontier between England and Germany, and much bad feeling was aroused against the Chancellor, Caprivi, who was held to have surrendered too much of German rights to the English; and the acquisition of Heligoland was not then considered as any equivalent for what had elsewhere been given up. But if Heligoland were still a British possession what now would be our position in the North Sea? England would never have given up that island to a State capable of defending itself by sea, but for the true needs of such defence, ships and not coastal islands, are mainly required.

In June, 1897, Rear-Admiral Tirpitz had been summoned home by the Kaiser from the Asiatic Station and installed as Secretary of the Admiralty. It was his business to educate the Reichstag and the people to the needs of admiralty. The Navy Bill of 1900 was not, the author reminds us, evolved all at once, a bolt from the blue; it was *necessary* in order to ensure a steady, economical growth in ships and *personnel*, it became *possible* because the strategic and tactical views, as elaborated by us, had become common to all navies. The first draft of the Navy Bill of 1898 merely ensured the completion of the plan for the founding of a navy introduced in 1873. It did not take into consideration the possibility of war with a great naval Power; it only discussed the question of a high sea fleet as one that, being actually a coastal fleet, might on occasion be used to sally forth and fight, and laid great stress upon coastal defence and the protection of commerce by such means only. In the interval between the passing of this and the real Navy Bill came our taking possession of Kiao-Chao. It may be said that the Navy Bill of 1900 was more of a blue-water one; we began to enlarge our naval views and aspirations, recognized the need of additional protection and security, and the possibility of being opposed by sea to greater—yes, even to the greatest of naval Powers. Coast defence ships were no more considered; the home battle-fleet was to contain 34 vessels distributed in four squadrons, of which two were to be always in commission, and two in reserve.

There was also to be a proportionate number of large and small cruisers for home and foreign stations, and while torpedo boats were not reckoned in the Bill, they were none the less generally allowed for. The Bill in fact organized the fleet for war, making it possible that on the outbreak of war the fleets should at once make the enemy's coasts their frontiers. The

central feature of the Bill was the battle-fleet ready for war; everything else fell into the background, even the coast defence and protection of colonies and commerce, since all these, so far as concerns civilized European war, are based upon and rely on the home battle-fleet, whose strength should never be distributed over the world's surface. "Germany," so ran the terms of the Navy Bill, "*must possess so powerful a navy, that a war even with the greatest of naval Powers will be attended with such risks as to endanger the might of that Power.*"

The Navy Bill called the battle ship a ship of the line and drew up the tactical principles of the formation of the gun-fight, as we have before discussed them. The action of cruiser and torpedo boat was also laid down. Everything of special type, speed, radius of action and so forth, was no longer recognized in the commerce protection cruisers, but each cruiser was able to take up its allotted duty with the battle fleet, and the home fleets and foreign fleets were similarly organized and were, at need, interchangeable. The Navy Bill of 1900 not only laid down rules for the increase of the fleet, but described for those who knew how to read its provisions, "how the fleet, as a political organ, should be strategically and tactically employed." "For the German nation," says the preamble of the Bill, "the security of its commercial development, the protection of its world-commerce, is a matter of life and death. To ensure this the German Empire requires peace, not only on land but by sea—not, however, peace at any price, but peace with honour, one which shall take account of all its rightful requirements."

The Navy Bill, then, asked that the armed peace, long existing by land, should equally be confirmed on the sea. As was only militarily correct, the English fleet, the most powerful of all possible adversaries, was taken as the pattern whose armament should be copied. In this way, not only were all other possible antagonists reckoned with, but it was considered that as England had the greatest incentive to suppress our peaceful development, she could adopt measures against which we must not be found defenceless.

The author here recapitulates what he has already said, and what other German writers have often pressed, that Germany has not and never has had any idea of outbuilding England; nor is there any wish or intention of provoking England to declare or make war; Germany wants no more than the maintenance of "the open door," by which is meant what, so says Admiral von Moltzahn, England has and always will insist upon—mutual commercial rivalry, commercial struggle one with each and all, while behind the merchant is the State, and political influence is backed by armed strength.

The growth of the German fleet was watched by the continent of Europe with mixed feelings, English opinion on the

matter being especially outspoken. Men in England would not admit that German naval preparations were merely the natural consequences of ordinary commercial development, and Germany was at once credited with an intention to attack, to invade, England. The military position of Germany on the Continent was exaggerated; parallels were drawn between Germany and France under Louis XIV., or under Napoleon; and men in England believed, or tried to make the public believe, that Germany was building a fleet which would soon be more powerful than that of England, that in conjunction with her land forces, Germany was threatening the peace of Europe, and that England must look to her own protection. In 1904 an understanding was come to with France, England's old adversary; then was effected the alliance with Japan; the United States were already connected by ties of blood and speech; and thus did England begin that political isolation of Germany, whereby she was relieved from anxiety about the protection of her foreign possessions, and was able increasingly to concentrate her naval strength in the North Sea. These measures could only create the impression in Germany that they were directed against any increase in our commercial growth, for which the ships then building were to serve as an additional protection. Otherwise, why this political rivalry? Why was the English fleet concentrated in the North Sea? Was it intended as an act of intimidation? Was it intended thus to account for the cry which was raised "to crush the troublesome upstart before he grew any stronger"? So far as we (the Germans) were concerned, even if we had cherished such foolish ideas for the future, we were *at that time* certainly not in a position to carry them out.

When from 1906 onwards, England and other nations commenced to build ships of greatly increased displacement, Germany followed suit; more torpedo boats were built, submarines were designed, six big cruisers were ordered for our foreign fleets, and of these four, formed into a squadron, were always to be ready for service wherever required, while the remaining two were sent to foreign stations. Then came the introduction of battle-cruisers, and these also were built by Germany and attached to the home fleet. All these requirements were sanctioned by the German Reichstag, practically unanimously, despite the fact that not only was the cost of the ships themselves raised by their increased size, but that docks and appliances had to be enlarged and added to, while the Kaiser Wilhelm canal had to be widened and deepened. The need for our naval development was now recognized everywhere in Germany, and the attitude of England did not serve to intimidate us, but rather tended to convince us of the correctness of the line we were following.

In 1908 there was a further inflammation of public opinion in England against Germany, compounded partly of antipathy,

partly of mistrust, leading to something almost like a panic. The Ministers in Parliament represented inaccurately the comparative strengths of the English and German fleets, but in order to lay stress on these they misrepresented the German building plans and gave wrong figures for the ships building or in commission on either side. We took no notice of these exaggerations, and taking up the standpoint that the strength of our fleet was our business only, the representatives of the German Government omitted no opportunity, in the interests of peace, of correcting false impressions and inaccurate figures. The rejoinder made by the Reichstag to the English nation was that the naval estimates for 1909 were passed absolutely unanimously and without any general debate.

The introduction of the *Dreadnought* class of ship permitted Germany to achieve more rapidly an improvement in the quality of her fleet, since, from motives of economy, and having regard to the capacity of the Kaiser Wilhelm Canal, we had kept down the displacement of our vessels as much as possible. But fighting efficiency is in a certain sense expressed in displacement, so that the completion of every new ship of the big class, replacing one of the out-of-date small class brought us an increase in fighting efficiency to a greater extent than was the case in the British fleet, whose ante *Dreadnoughts* were much more powerful than were ours of the same period.

The recognized unanimity of the German people, and their determination to keep the peace, caused a different view to obtain in England. As relative naval strength became more equalized, the wish to break the peace, visible across the North Sea, began to disappear. The threat which lay in the concentration of the English fleet in the North Sea did not diminish, since as new ships were built they were added to these squadrons, while new works and naval ports were established on these coasts; but these threats gave way to negotiations for disarmament. We recognized, however, that anything of the nature of an agreement for the reduction or restriction of armaments was not a matter of practical politics.

Of the London Conference of 1909, the author says but little; he seems, however, to indulge the hope that certain ameliorations may result from its proceedings in the situation of those States who wish to carry on wars in distant waters, and who are so unfortunate as not to possess any coaling stations of their own. At present, he complains, such States are practically debarred from the exercise of their sovereign rights of waging war in the remoter seas.

The year 1911 provided alike a reverse and fresh navy bills. We began ourselves to speak of "invasion," when England "backed" France over the Morocco question and the threat of war arose. A naval war is more sudden in commencement than a land war, and for this reason the offensive by the stronger

naval power which would blockade our coasts at the very moment of a declaration of war, must be awaited with calmness and guarded against. Our navy bill additions of 1912 provided against these dangers, for instead of two squadrons only, three were to be always maintained in a state of readiness for war and they were to contain also the pick of our warships. Also under these supplementary bills our *personnel* was added to, more submarines were acquired, and dirigibles were constructed. The third active service squadron was to be provided by drawing upon the reserve of *matériel* and by building three battleships and two small cruisers. For the first time Germany saw the possibility of her being opposed to a combined military and naval Power, though it was not clear whether England proposed offering her ally naval assistance only or intended to help with her land forces as well. We have shown the two western Powers that we are on our guard; but something more than this is necessary—a real combination of political and military measures during the period immediately preceding a conflict. Our fleet is not, and may never be, an absolute weapon compared with that of England; and if the possibility of a war between us ever comes nearer it will not suffice, as in 1870, to take precautions to prevent our opponent from having any allies; but if such a war is really to have definite results for us, care must be taken that England, by reason of the loss of power which the destruction of the German navy will cause her, shall suffer serious injury in some other part of the world. This the naval authorities cannot secure of themselves; everything must be carefully weighed before any actual political action is taken, so that there may be neither retreat nor check. Admiral von Moltzahn reminds his readers that there is no Power which can suffer more from the consequences of a world-war, commercially, than would England. *Impavidum ferient ruinae!*

He comes to the provisional acceptance by the Secretary of the German Admiralty of the English First Lord's suggestion of 1912, that a proportion of naval strength of 16 to 10 be laid down between the two Powers. Since Germany had never attained this proportion, Admiral von Tirpitz could readily enough accept it; he reminded the English nation, however, of what had long been the true import of our Navy Bill—that it was the question of *risk* which was the reason for all our armaments and held off England from making war upon us; it is patent that this risk becomes the clearer when expressed in figures. But can such figures be accepted when we see the English colonies busy building ships for the Mother Country?

German naval armaments are not directed against England alone, nor are their burdens borne only because of England. It is to be devoutly wished that England could realize that an enduring understanding is possible with Germany even in regard to naval affairs!

The English debates on the naval estimates followed ours, and the Premier took occasion to say that the understanding with France contained no proviso that in the event of a war between France and England on the one side, and Germany on the other, England's military forces were to go to the assistance of France. The English press upon this made haste to point out that such assistance *must* be given in the interests of self-defence. In bringing forward the great requirements of the Naval Estimates the English First Lord adopted a milder tone towards Germany; but it was not altogether a peaceful utterance to speak of the natural situation which had arisen between the two States as "an extravagant, purposeless, vain piece of folly," or elsewhere as "one of the saddest and most foolish chapters in the whole history of European civilization." He also characterized the naval supremacy of Britain as "part of the common treasures of mankind"—which seems to account for many of the opinions which have been expressed. The peaceful development of England in the nineteenth century certainly did much for European civilization, and increased the "common treasure of mankind." But is every other territory which becomes available also to belong to England? Are the rest of us to have no place in the sun?

English politicians often hold the opinion that England's unlimited naval supremacy is a blessing for the rest of the world; that the sense of justice in England may be trusted to divide among other States whatever may be considered their due. But are we all really expected to live in confidence in regard to naval matters upon England's sense of what is right? It is also maintained that England can never permit any other naval Power to so nearly approach her in strength; that by naval pressure England's political influence can be diverted or checked. Is there, then, to be one law for the possession of navies and another for armies? Is not every army a means of influencing the demands of policy? The Admiral expresses approval of what the English First Lord said as to both nations being entirely free to prepare what naval armaments they please, to increase or diminish their building programmes as seem good to them, and remarks that did English actions only agree with words, many things might have been left unsaid, which only excite disquiet and ill-will.

But of more importance than the repeated remarks and comments on comparisons of strength, the suggestions for a "holiday" in ship building, the queries in Parliament, answered by ministers in the affirmative, as to England's capacity for building ships and finding crews to man them, are the views which responsible persons in England continue to express as to the naval armaments of either country. The author quotes the remarks made by the First Lord on March 18th, 1912, as to the English defencelessness, that Britain, alone of the great Powers, maintains no huge army, cannot threaten

the independence or interests of any one of the Continental States, has neither the wish nor the power to carry out an invasion, and that these facts justify England's maintenance of naval supremacy. "Is it possible," says the author, "that England, the greatest maritime State, is unaware of the weapon she possesses in her fleet against Continental Powers, like Germany, which are daily becoming more dependent upon the sea? Does not this weapon appear, like the threat of war, whenever Germany, as in the case of the Morocco question, attempts anything in any part of the world in furtherance of her maritime interests? We have neither the wish nor the power to rob England of her naval supremacy, for we could not provide ourselves with a fleet strong enough to *conquer* England; but our fleet would not be worth the money we have spent on it, if it could not be capable of *injuring* England and thereby protecting our interests at sea against her."

In his "conclusion," Admiral von Maltzahn enumerates the ships and fleets which Germany will in the near future possess under the Navy Bill, and the "supplementaries" of 1906 and 1912:—

- a. An active battle-fleet (ships permanently in commission with full crews) comprising 1 flagship, 3 squadrons, each of 8 ships of the line, 8 large and 18 small cruisers.
- b. A reserve battle-fleet (25 per cent. of the ships in commission, with 33 per cent. of engine-room and 25 per cent. of remaining *personnel*) comprising 2 squadrons, each of 8 ships of the line, 4 large and 12 small cruisers.
- c. In addition, in home waters, 144 torpedo-boats—99 with complete crews—and 72 submarines, of which the crews of 54 will be complete.
- d. A foreign service fleet of 8 large and 10 small cruisers.

Of all the above *d* is by far the least complete. "But while England at the moment concerns herself only with the North Sea, but is again commencing to remember her distant sea territories, so must we also, in spite of the all-importance of the duties of our Home Fleet, devote more attention and naval consideration to our interests in distant waters lest they should suffer from neglect."

The author closes with some remarks of a self-congratulatory character. He points out that in certain aspects German trade has distanced that of England; he appears to be content that the "Colony hunger" in Germany is becoming appeased, that emigration has diminished, and seems even to find some germs of comfort in the decline of the birth-rate, which will further reduce emigration. The time has come to consider the question of colonizing the interior, and he suggests that men should be "planted out" in the frontier districts to keep off the foreign pressure from without. Such colonies as Germany possesses must, however, be retained and developed to the utmost.

Germany can never be, like England, a maritime nation; Germany must develop and prosper by means of industry and agriculture on the one side, and by distributing her defence between her army and navy on the other.

The author seems at the end to make a final appeal for an increase of armaments—needed, as he has reiterated throughout his paper, for the protection and security, and to help on the commercial development, of Germany. He pleads for an augmentation of war strength, for protection of existing frontiers, and for preparing for expansion. A naval war requires fewer men, but in case of war these have at the outset other duties than an army. Every delay in forcing a decision means the work of re-conquering the common possession of the sea, which, in peace, had been given over to the enemy. "For this has the German Fleet armed and trained when at last we are provoked to fight."

There have been many changes in naval tactics, ever since the war in Far Eastern waters, due to bigger ships, more powerful guns, the introduction of the battle-cruiser, with the possible combination of lines, rather than of a single battle line, for the naval action of the future. These, with submarines, dirigibles, and seaplanes, tell us that conditions have changed for the preparation for battle, for its conduct, and for utilizing its results.

THE YEAR 1913 IN FOREIGN ARMIES: FRANCE.

Army Corps.	Infantry Divisions.	Cavalry Divisions.	Divisions in an Army Corps.	Brigades in a Division.	Regiments in a Brigade.	Battalions in a Regiment.	Co.'s in a Battalion.
20 (a)	43 (b)	10 (c)	2	2	2	3 (d)	4

- (a) A new Army Corps, numbered XX1st, is to be organized with headquarters at Epinal.
- (b) Will be 45 when the XX1st Army Corps is raised.
- (c) Ten independent cavalry divisions, ten groups of horse artillery and ten groups of cyclists. In principle, one regiment of light cavalry is attached to each army corps, and in some cases two or even three.
- (d) 173 regiments, of which 164 have three battalions, eight have four battalions, one in Corsica has a variable number of battalions; there are also 31 battalions of Chasseurs à pied.

PEACE ESTABLISHMENT AND APPROXIMATE WAR STRENGTH.

	Infantry.	Cavalry.	Artillery.		Other Arms and Departments.	Total.
			Men.	Guns.		
Peace ...	386,338 (a) (1)	73,369	97,571	2,720	60,422	617,700 (2)
War (b)	2,600,000	430,000	588,000	3,200	260,000	3,878,000
(a) Including Gendarmerie ..		...	...	...	21,997	
Garde Républicaine ...		...	...	...	2,993	
(b) Active Army ...		...	...	...	1,009,000	
Reserves and Dépôts ...		...	...	...	1,600,000	
Territorial Army ...		...	...	...	818,000	
Territorial Reserve ...		...	...	...	451,000	
Total, approximately		...	...	...	3,878,000	

- (1) 1,500 less than in 1912 in spite of an extra contingent, see notes below.
- (2) This takes no account of the extra class which joined in November, 1913, and which numbers about 200,000 men.

M. P. Doumer only estimates the 1913 class at 140,000 men, whereas according to the figures given by the War Minister there were allotted to the Service Army 200,150 men.

The peace strength of the French Army is probably about 727,000 now.

Note.—Owing to the temporary retention of the 1910 Class with the Colours until the second week in November, when that class was

MILITARY EXPENDITURE.

1. The Military Budget for the year 1913 amounted to £39,328,974, showing an increase over that voted for 1912 of £2,509,029.

This sum of £39,328,974 was distributed as follows:—

	£
1st Section, Metropolitan Troops ...	32,818,794
2nd Section, Colonial Troops ...	1,713,957
3rd Section, Constructions & Matériel	4,796,223
	<hr/>
	£39,328,974

The Military Budget of the Colonial Office amounted to £3,478,522.

2. In addition to the above Budgets, a further sum of £9,380,000, out of a Bill asking for £17,600,000, was voted in the summer for expenses incurred in the retention with the Colours from October 1st to the end of the year of the 1910 class of soldiers, who under ordinary circumstances would have been liberated in October; this retention was, at the time of the passing of the Three Years Law, considered necessary. This sum of £17,600,000 is again referred to below under paragraph 3 (b).

3. It is impossible to lay down definitely at present what the exact military expenditure has been for the year; various monetary Bills were laid before the Chamber in the summer, and on the reassembly of parliament in November they were embodied in a Bill for the purpose of the necessary monies being raised, and it was on this Bill that the Barthou Ministry fell in December. The amounts of the various Bills which constitute in reality extraordinary expenditure for national defence and which are still under consideration may be enumerated as follows:—

- (a) *A Bill for* £16,800,000 for national defence, *i.e.*, improvement of railway communication, the engineer and artillery services and the altering of some of the guns of the field artillery; of this sum £12,400,000 is required between 1913 and 1914.

liberated and its place taken by the 1913 Class (in accordance with the law for three years' service), the peace strength of the army during the last three months of the year amounted to about 712,000 men. This number, 712,000, is the official estimate of what the peace strength of the army will be up to the year 1916-17, when it is expected to amount to some 750,000 men; see Report by M. Paul Doumer, No. 339 Senat, page 118. Against this, the numbers estimated for in the Budget for 1914 are much in excess of this number.

- (b) *A Bill for £17,600,000 for the retention of the men of the 1910 class with the Colours as mentioned under para. 2 above, purchase of horses, etc.; £9,400,000 was voted in the summer, but subsequently it was determined for political reasons to liberate the 1910 Class in the middle of November and to call up in its place the 1913 Class; the calling up of this class necessitated a certain amount of extra expense and it was urged by politicians, etc., that as the age of these recruits was 20 years, instead of 21 as formerly, special care should be taken of their health; hence it was determined to augment this sum of £17,600,000 by a further £5,920,000 (£23,520,000) for hygienic reasons.*

- (c) *A Bill for £16,000,000 for expenses incurred in Morocco.*

Hence the monetary Bills now under discussion are (a) £12,400,000; (b) £17,600,000 plus £5,920,000; and (c) £16,000,000; total £52,000,000.

Other Bills which were passed in the last days of December were one for the increase of the pay of under-officers and of officers below the rank of General; one for the creation of a Directorate-General of the Aeronautical Service, replacing the Inspector-General; and one for the creation of the new (XXIst) Army Corps (a).

- (a) The XXIst Army Corps is to be raised, its position being between the VIIth and XXth Corps, with headquarters at Epinal. The expenses in connection with the creation of this corps are estimated at:—Initial expenses, £18,896; annual expenses, £6,559.

WAR OFFICE (Central Administration).

By decree of August 9th the Central Administration of the Ministry of War consists of (exclusive of the Cabinet of the Minister of War):—The Secretariat-General, the General Staff, ten Directorates, the Interior Service; the personnel of the Central Administration is composed as follows: The Chief of the General Staff, the Secretary-General, two sous-chefs of the Staff of the Army, ten Directors (nine military), the Chief of the Cabinet of the Minister for War, the Chief of the Secretariat-General.

INSPECTOR-GENERAL OF CAVALRY.

By decree dated 18th March, an Inspectorate General of Cavalry was instituted, the Inspector General to be a General with rank of General of Division and to be a member of the Superior War Council.

FORTRESS COMMANDERS.

By decree of 14th March the Generals commanding the fortresses of Belfort, Epinal, Toul and Verdun were given the rank of Army Corps Commanders, provided they have been in command of these respective fortresses for at least two years; they therefore become senior to Generals of Divisions stationed in the adjacent regions, and, in the event of the Corps Commanders being absent, they assume the command of the army corps.

CONSEIL SUPERIEUR DE LA DEFENSE NATIONALE.

This committee is obliged to meet at least twice a year, preferably in the months of April and October; the President of the Republic can order it to meet when he thinks fit and has the right to preside.

The following is the composition:—The Prime Minister, President; Members: The Minister for Foreign Affairs, the Minister of the Interior, the Minister of Finance, the Minister for War, the Minister of Marine, the Minister of the Colonies.

INSPECTING GENERALS OF RESERVE FORCES.

In each army corps district (region) a General Officer is appointed as Inspector of Reserve Formations and of Military Training; he is to be a "General of Division," and his duties are to inspect the mobilization of the reserve forces and the territorial units of the district, to supervise the training of the cadres of the reserve forces, recommend promotions and so forth; in the event of mobilization he will command a division of the Reserve. He is subordinate to the Army Corps Commander.

COMITE CONSULTATIF DE LA PREPARATION ET DU PERFECTIONNEMENT MILITAIRE.

This committee was created at the War Office early in the year, its first object being to draft a law in conformity with Article 2 of the 94th Article of the Law of 21st March, 1905, for the organization and military instruction of the youth of the country aged between 17 and 20. It is composed of eight Senators, eight Deputies, one representative from the Ministries of Interior and Public Instruction, four from the War Office and four chosen from among the Presidents of national unions, etc.

SUPERIOR WAR COUNCIL.

By decree of February 13th it was ordained that when any deliberations were being taken in connection with North Africa the General Commanding the XIXth Army Corps must be

consulted; likewise if the creation or suppression of a fortress was being discussed, the commander of the army corps in whose region the fortress is situated must be consulted. In the case of the discussion of coast defences, the following are to be consulted:—The Commander of the Army Corps, the Technical-Inspector of Coast Artillery, the Chief of Marine Staff, the Vice-Admiral "Rapporteur" of the Commission studying coast defence and the "prefet maritime."

VETERINARY COMMITTEE.

A Consultative Veterinary Committee was formed at the War Office, the President being the Permanent Inspector of Remounts.

COAST DEFENCE.

From April, 1914, the Coast Artillery will be manned by sailors, the military personnel being transferred to the eastern frontier.

HIGHER ORGANIZATION AND CONDITIONS OF SERVICE.

Three Years' Law.

By a law dated August 7th, 1913, all Frenchmen, with certain exceptions, have to perform three years service, instead of two as previously; the chief points of the law are:—

- (1) Service with the Colours to be for three years, with a proviso that well-behaved men are to have four months' leave (120 days) exclusive of Sundays and fête days.
- (2) Liability for service to be 28 years in all, *viz.*: three years in the active army, eleven in the reserve, seven in the territorial army, and seven in the reserve of the territorial army.
- (3) Recruits to be incorporated at the age of 20 instead of 21 as formerly.
- (4) A minimum strength below which no unit is to be permitted to drop was fixed.

REORGANIZATION OF ARMY CORPS.

Consequent upon the Three Years' Law and the Loi des Cadres, a new organization of the troops on the frontier came into operation on October 1st by means of which it is hoped that mobilization will be ameliorated and the defence of the frontier improved. A new grouping of the fortresses was also determined on.

INFANTRY AND CYCLISTS.

Creation of Units.

In conformity with the Loi des Cadres, dated December 23rd, 1912, and the Three Years' Law, the following units were created or formed:—

- (1) Ten new line regiments, numbered 164 to 173.
- (2) Nine regiments of Tirailleurs.
- (3) The 31st Battalion of Chasseurs.
- (4) The strength of the five battalions of African Light Infantry was settled at 7,500 men, and the number of companies per battalion at six.
- (5) Four battalions of Zouaves, *viz.*: two battalions for the 4th Regiment, one battalion for the 3rd Regiment, and one battalion for the 1st Regiment.

Ten cyclist companies were created out of the battalions of Chasseurs and were attached to the ten cavalry divisions; these cyclist companies appear under Section VII.

NEW FORMATIONS.

INFANTRY.—The ten new regiments of Infantry are garrisoned as under: 164, 165 and 166 at Verdun; 167, 168 and 169 at Toul; 170 at Epinal; 171 and 172 at Belfort; 173 at Nice.

TIRAILLEURS.—The nine regiments of Tirailleurs are located as follows:—1st at Algiers; 2nd at Oran; 3rd at Constantine; 4th at Tunis; 5th, 7th and 8th in West Morocco; 6th and 9th in East Morocco.

2nd ALGERIAN BRIGADE.—This brigade has been broken up into two brigades as follows:—2nd Brigade, composed of 2nd Zouaves and 2nd Tirailleurs; headquarters at Oran. 4th Brigade, composed of 1st and 2nd Foreign Legion, 1st Battalion Chasseurs d'Afrique and 6th Tirailleurs; headquarters Tlemcen.

RED CROSS SOCIETIES.

Various societies recognized as useful in aiding the sick and wounded were brought under the "Service de Santé" with a view to their better organization and disposal from a military point of view and to ensure a proper use being made of the Red Cross.

OTHER ARMS AND DEPARTMENTS.

Garde Republicaine.

By decree of May 22nd the Legion of the Garde Republicaine was organized as follows: Staff, etat major and petit etat major; Peleton hors rang; three battalions of infantry of

Note.—All the battalions of Chasseurs are organized in battalions of six companies each.

four companies each; four squadrons of cavalry. Total effectives: 2,993 officers and men, 788 horses.

TRANSPORT.

Registered Automobiles.

1. New regulations were issued determining the prizes (primes d'achat and primes d'entretien) to be allotted by Government to persons desirous of obtaining these money grants for heavy and light automobiles.

2. The conditions of the reliability trials of automobiles, e.g., the weight, weight over axle, tyres (which are to be of india-rubber, or some substance analagous to rubber), size of wheels and tyres, weights to be carried, etc., etc., were laid down in October for the trials which will take place in 1914.

VETERINARY SERVICES.

"Comité Consultatif Veterinaire."

1. By a decree dated July 21st a Veterinary Committee was established at the War Office composed of:—

President—The permanent Inspector-General of Remounts.

Civil Members—Inspector-General of Veterinary Schools. Inspector-General of Veterinary Services of the Ministry of Agriculture. An officer of the Pasteur Institute. A professor of the Veterinary School at Alfort. A professor of Hygiene of the School at Alfort.

Military Members—The Veterinary Inspector. A Colonel of Artillery. A Colonel of Cavalry. A Veterinary Director. Two other veterinaries.

Total: One President, five civil members, seven military members.

EDUCATION.

St. Cyr.

Instructions were issued in October with regard to the admission of candidates to the Special Military School at St. Cyr, which furnishes officers for the infantry of the Metropolitan Troops, the Cavalry and the Colonial Infantry; the number of candidates to be admitted in 1914 is as follows:—Infantry 300, Colonial infantry 125, cavalry 70. Total: 495.

The examinations will be held in each army corps region, in Paris and Tunis, and will consist of (a) a written examination, (b) an oral, and (c) a physical examination.

The curriculum is laid down in the *Journal Officiel* of October 19th.

TRAINING.

Training Grounds.

In the greater portion of Europe, owing to density of population, farming and other agrarian pursuits, the land is

denied to the troops for about six months in the year, say, from April to September, consequently it is of the greatest importance from a military training point of view that the Crown or the War Office should be in possession of certain areas of land where the men can be trained without upsetting the economic conditions of the country. As regards France, it would be the acme of perfection if each army corps were in possession of its own training ground, but this is by no means the case; there are at present four divisional training grounds, *viz.*, Chalons, Mailly, La Courtine and Coetquidam, and a further four brigade training grounds, *viz.*, Souze, le Larzac, Sissonne and le Valdahou; this is not a great amount for the 19 army corps of France numbering some 500,000 men, and in view of the increase in the peace strength of the army in accordance with the Law of Three Years it is proposed to augment them by nine divisional camps and three brigade camps. Endeavours have been made during the last few years to this end, but sufficient money has not been forthcoming up to the present; nevertheless, having regard to the various financial Bills still under consideration dealing with military details and national defence, it is hoped that an amelioration in this matter will be accomplished.

TRAINING OF CONSCRIPT RECRUITS.

Consequent upon the passing of the Three Years Law there are with the Colours between the middle of November and the month of, say, April, 1914, two classes of untrained recruits, and it is obvious that an enormous amount of extra work is consequently thrown upon the commissioned and non-commissioned ranks of the army; this is a still more serious matter when it is realized that there is a deficit of some 3,000 officers and 6,000 sous-officers. Furthermore, towards the end of the year 1913, there were two classes of recruits who were called up to the Colours at different times, *viz.*, the 1912 Class, which came up early in October, and the 1913 Class, which did not come up till the second week in November on the liberation of the 1910 Class, which had been retained until that time; consequently it will be seen that the two classes at the present time under arms (exclusive of the trained Class of 1911) require a somewhat different elementary training. To this end, an appeal was made by the Minister for War to all officers and sous-officers to patriotically carry out the heavy extra burden which was thrown on them. A systematic course of training was laid down with a view to ensuring the two classes being instructed.

INSUBORDINATION.

Some cases of insubordination occurred in the spring among some of the men undergoing their military service in the active army; the reason was the proposal to introduce three

years' service with the Colours; strong and prompt measures were taken for the suppression of this description of insubordination; during the autumn when it was found that there was no repetition of similar regrettable incidents, most of the men were let out of confinement, and it has been announced that clemency will be shown to all the offenders in cases where such offenders are still undergoing imprisonment.

RECRUITING.

The Contingents.

Two contingents were called up during the year, *viz.*, the "class" of 1912 and the contingent of 1913.

The Class of 1912 was called up on October 1st, and numbered 220,833, consisting of:—208,814 "appelés," 12,019 "ajournés" of the 1911 Class. Total, 220,833.

The contingent composed of the 1913 Class was incorporated at the age of 20 years instead of 21 as previously, and amounted to about:—186,350.¹ These latter recruits were called up in the middle of November on the liberation of the 1910 Class, who had been retained with the Colours beyond the usual time of liberation, *viz.*, the 30th September.

Algerian Recruiting.

1. The Law dated February 3rd, 1912, prescribed that the natives of Algeria should be enlisted obligatorily; this method of enlistment is reported to be working very favourably, but after two years' trial it has been considered advisable that the age at which native recruits should be incorporated should be 20 instead of 19.

2. The number of youths of the Algerian contingent, composed of the 1912 Class and the ajournés of 1911, amounted to 5,445, that of the Tunisian contingent being 257; this is an approximate figure.

RESERVES AND MOBILIZATION.

Gardes Communales.

Communal Gardes are composed of men under 35 years of age of sufficient activity to be of use; they are recruited voluntarily and their duties are in the event of mobilization to keep order and guard the railways, etc., etc. The "prefets" supervise the organization of these Guards and organize them in groups; on mobilization they receive a daily pay of about two francs 50c. up to five francs for men specially employed.

Of late years exercises have been held with a view to seeing how these Guards work in connection with the guarding of the

¹ Note.—The War Minister has since announced in Parliament that the 1913 contingent amounts to 200,150.

railway lines, and it has been determined that they are not sufficiently numerous; the Minister of the Interior consequently addressed a letter to the various prefects in the country with a view to their augmentation, and their strength is now doubled.

COLONIAL TROOPS.

The Niger Territory was divided into seven districts as under:—

Niamey, comprising the sections of Niamey, Tillaberry, Gaya, Dusse, and Dogondoutchi; Nadoua, comprising Nadoua, Maradi and Tahoua; Zinder, comprising Zinder, Tessaoua and Damergou; Goure, comprising Goure, Alokos Koutous and Toubou; Maine-Soroa, comprising Maine-Soroa and N'Guigmi; Agades; Bilma.

Various new railways are to be constructed in Equatorial Africa during the next ten years; these will entail a cost of some six million pounds sterling.

In West Africa it is proposed to improve the ports and build railways, for which purposes it is intended to raise a loan of some £7,000,000.

The islands of Wallis and Fortuna in the Pacific are reported to have been annexed by the French.

Morocco (Loan for improvement of).

The question of raising a loan amounting to about £720,000 is still under discussion; in connection with this loan, General Lyautey is anxious that Rabat should be made the capital, but it appears fairly certain that this suggestion will not be agreed to.

MILITARY OPERATIONS IN MOROCCO.

French Morocco was divided into two portions early in January with a view to ensuring a better military organization of the country, these portions being Eastern and Western Morocco; the eastern portion was sub-divided into a northern and southern region, and the western portion into six regions. This military organization of the country has worked well.

A certain amount of desultory fighting took place in February and March, but in April the situation materially improved; In May and June a certain amount of unrest was apparent among certain tribes, but towards the end of June and in July quiet was again restored; in August and September a great deal of progress was made in the pacification and development of the various districts, and in October the road from Casablanca to Rabat was in working order for automobiles; the construction of a metalled road from Casablanca to Marakesh is getting on; a regular motor service is running between Marakesh and

Mazagan, Casablanca, Rabat, Meknes, Fez. Improvements are being carried out at the ports of Casablanca, Rabat, Kenitra and Mazagan.

In November the post of General Commanding Eastern Morocco was suppressed, all troops in Morocco being placed directly under the orders of Resident-General Lyautey. There are about 85,000 troops in Morocco, which for the most part are connected up by telegraph, about 1,250 miles of airline being established between the various military posts.

POLITICAL.

Franco-Spanish Treaty.

The Franco-Spanish Treaty with reference to the Spanish occupation of a northern province of Morocco was duly ratified, and the boundary between French and Spanish Morocco was laid down; the Treaty was ratified by France at the end of March.

In January the German Government announced its adherence to the Treaty of March 30th, 1912, by which Morocco was placed under the authority of France.

By a decree dated January 16th, 1913, the legation of the French Republic at Tangiers was suppressed and a Consulate-General established in its place.

SUGGESTIONS FOR THE IMPROVEMENT OF THE TERRITORIAL FORCE.

By LIEUT.-COLONEL W. CAMPBELL HYSLOP, C.B.

THE thoughtful paper of Major Bradbridge, pleading for co-ordination of effort in Territorial administration, and that of "Invicta" in the March issue of the JOURNAL, are welcome tokens of the thought being given to Territorial affairs by officers who are apparently in close touch with it.

The few observations I venture to make on the latter paper are based upon a considerable experience, and I only deal with the points in which it is desirable to have other opinions; I am in general agreement with the remainder.

"Invicta" contends that the work of Territorial Associations wants assimilating, and suggests that an officer in charge of administration should be appointed to each Division to supervise the work of Associations. But is this not tantamount to the abolition of Associations, for the officers who do the supervision might just as well do the actual work, and their appointment would then correspond to that of the General Officer Commanding in Charge Administration in a Regular Command. There is no doubt it would secure a much to be desired uniformity of method, and it has always been a matter of personal regret to me that in the beginning the Army Council did not set up a model scheme of administration. As it is, the methods of Associations differ widely and they have become so many administrative commandos. Some do their work well, some indifferently, but it must all be very difficult and confusing for a General Officer Commanding a Division who may have to deal with several Associations.

All the same, Territorial Associations are very fine organizations, but if all the administrative and financial responsibility were taken from them, there would be no further use for their existence. They have helped to bring an influential civic element into close and familiar relations with the Army, and any step which would endanger their existence should be deprecated.

I quite agree with "Invicta" that it will be desirable to have an experienced staff on mobilization, as the military members would be away with their commands, and the majority of the

civil members probably concerned so much with their own affairs, that they would not be available for the work of the Associations. It is still not very clear how much the Associations will be required to do on mobilization, as the Army Council have not yet decided whether they are to equip the recruits who come in after embodiment.

The National Reserve.

If "Invicta" will refer to the National Reserve Regulations he will see that there are three classes, and that those who are owing to age, or physical defects unfit for service, do not come into Classes 1 or 2, which contain the effective members; the intention is to do honour to the old men who are not fit for further service. Of course, every effort should be made to eliminate wasters, and that is being done.

With regard to duties, we may presume the difficulty of the War Office to be, that the obligation is not a binding one, and therefore they cannot be certain that if duties were allotted to the National Reserve, the individual men would be forthcoming when required. The obvious reply from the National Reserve point of view is that the War Office cannot ask men to give a binding obligation unless they are paid for it.

"Invicta" must remember that the circumstances of different countries vary exceedingly, and when he urges that there is no necessity to form battalions he may be speaking for Inverness-shire, but certainly not for London, with its division of 37,000 men organized into seven brigades and 37 battalions. It has been found that the regular soldier, in the south of England at least, does not care to be allotted to a Territorial Unit previous to embodiment, and there is much to favour the contention that the simpler way would be to allot National Reserve battalions to Territorial Units for the purpose of completing their establishment on mobilization.

To this step the National Reserve would probably have no objection, and it would avoid the objectionable course of allotting them individually in peace time.

Red Cross Voluntary Aid Organizations.

The unsatisfactory condition of this branch is largely owing to disagreement and cross purposes of the authorities. The organization of the Voluntary Aid detachments was originally the duty of the Territorial Associations, but they were authorized to depute the work to the Red Cross Society. If funds cannot be raised locally to support and equip the detachments it is unlikely that any progress will be made, as the Territorial Associations are not allowed to use their funds for this purpose and the Red Cross have none to spend in peace time.

Enlistment of Ex-Regulars.

One wonders exactly what people mean when they talk of the "lack of discipline," or "good discipline," of the Territorial Force. There is the discipline of the camp, and in this the Territorials are very good; and there is the discipline of the battlefield, of which the Territorials have no experience. I do not think the regular soldier would improve the camp discipline of the Territorials, and few of the Regulars now serving have had any battlefield discipline. Generally speaking, Commanding Officers would not welcome in their ranks a number of bounty-fed ex-regulars, though they would undoubtedly be useful on mobilization.

Training.

If "Invicta" is himself a Territorial, it is hard to understand how he can ask for longer training, when he must know the difficulties of getting men to do the 15 days which are at present authorized. The men would willingly do more if they could, but they would certainly lose their employment; indeed, too many of them lose their job through attending camp at all. Standing camps might be convenient for the training of men who could not attend the annual camp, but it is an expensive method, and it was found that the percentage who applied for permission to attend such camps was so ridiculously small that it was not worth while establishing one. I quite agree, however, that many more officers would attend courses of instruction if the rules were not so rigid.

Clothing and Equipment.

The officers' dress is an old and vexed question, and need not be enlarged upon here, as experience of the past shows it is not within the wit of man to devise a reasonable solution. I would remind "Invicta," however, that there is no reason why the Territorial soldier should not be treated like the old Militiaman as regards boots, shirts and socks, if the Associations have funds to do so.

As the Army Council have recently issued a circular letter encouraging Associations to use their surplus funds for the comfort of troops and the advancement of efficiency, it may be that one of the best ways of doing so would be to provide boots, shirts and socks for men who attend for the full 15 days at Annual Training.

NAVAL NOTES.

BRITISH EMPIRE.

APPOINTMENTS, PROMOTIONS AND RETIREMENTS.—The following were the chief of these events during May:—

Appointments: Vice-Admiral Sir C. H. Coke, to resume temporarily the appointment of Senior Officer on the coast of Ireland in the vacancy created by the death of Vice-Admiral Stokes. Rear-Admiral C. E. Madden, commanding Second Cruiser Squadron, to be Third Sea Lord of the Admiralty, in succession to Rear-Admiral A. G. H. W. Moore, appointed to command Second Battle-Cruiser Squadron. Rear-Admiral the Hon. S. A. Gough-Calthorpe to command Second Cruiser Squadron. Rear-Admiral D. R. S. De Chair, Naval Secretary to the First Lord, to be Admiral of the Training Service, in succession to Rear-Admiral E. R. Pears. Rear-Admiral the Hon. H. L. A. Hood to be Naval Secretary to the First Lord. Captains H. A. Adam to "Queen"; E. F. P. G. Grant to "Marlborough," and as Flag-Captain to Vice-Admiral Sir Lewis Bayly; C. MacLachlan to "King Edward VII.," and as Flag-Captain to Vice-Admiral E. E. Bradford; A. V. Campbell to "Vengeance"; A. G. Hotham to "Aurora"; B. S. Thesiger to "Arethusa"; T. D. Pratt to "Galatea"; H. R. Crooke to "Undaunted"; E. C. Hardy to "President" for service in Hydrographic Department; A. P. Davidson to "Cornwallis," and for Third Fleet group; C. P. Beatty-Pownall to "Challenger" and for Third Fleet group; J. S. Tancred to "Argyll." Commanders A. G. Warren to Royal Naval Barracks, Chatham, for drafting duties; D. G. Thynne to "Victoria and Albert"; C. W. Trousdale to "Shearwater"; M. C. Allenby (retired) to Sheerness Chart and Chronometer Depot; R. G. Rowley-Conwy to "Lark"; R. A. S. Hill and G. K. Chetwode to "King Edward VII."; H. J. L. W. K. Willcox and H. S. Currey to "Marlborough"; P. J. Stopford to "Canopus"; J. F. H. Cole to "Vigilant"; C. A. Severn to "Isis"; R. F. White to "Queen"; R. Eliot to "King Edward VII." and as Flag-Commander to Vice-Admiral E. E. Bradford; G. T. C. P. Swabey to "Marlborough" and as Flag-Commander to Vice-Admiral Sir Lewis Bayly; F. W. Dean to "Sutlej" in command on completing.

Promotions: Rear-Admiral Sir E. J. W. Slade to be Vice-Admiral; Rear-Admiral M. H. Smyth (retired) to be Vice-Admiral on retired list; and Captain the Hon. R. F. Boyle to be Rear-Admiral (all April 25th). Lieutenant H. E. Hillman (retired) to be Commander (retired) (May 5th). Lieutenant H. J. Middleton, R.N.V.R., to be Commander, R.N.V.R. (April 25th).

Retirements: Captain H. V. W. Elliott (May 5th). Lieutenant-Commanders G. E. B. Hand (May 1st); L. D. Penfold (with rank of Commander) (May 5th). Lieutenants A. Hart (May 12th); G. Ellis (May 13th); T. W. Martin and E. G. Hadley (May 24th); H. F. Carter (May 30th).

NAVAL VISITS TO THE BALTIC.—A series of visits to Scandinavian and Baltic ports during the month of June was announced by the Admiralty

on May 21st. These visits are of a similar character to those which have recently been made by different British squadrons to Austrian, Italian and French ports; and which Austrian, French and Russian squadrons have made to Portland and Malta. By an arrangement between the Governments concerned, their ships are making calls at each others' ports in the course of their training cruises, and the visits have no significance of a political or international character. According to the programme, Vice-Admiral Sir George Warrender, commanding the Second Battle Squadron, with the "King George V.," "Ajax," "Audacious," and "Centurion," and Commodore W. E. Goodenough, of the First Light Cruiser Squadron, with the "Southampton," "Birmingham," and "Nottingham," were to visit Kiel from June 23rd to 30th. Rear-Admiral David Beatty, commanding the First Battle-Cruiser Squadron, with the "Lion," "Princess Royal," "Queen Mary," and "New Zealand," and the light cruisers "Lowestoft" and "Boadicea," was to arrive at Reval on June 17th, Kronstadt on June 22nd, and Riga on June 30th. Rear-Admiral C. E. Madden, commanding the Second Cruiser Squadron, with the "Shannon," "Achilles," "Cochrane" and "Natal," was to visit Trondhjem and Bergen from June 15th to July 1st. The "Shannon" and "Cochrane" were to visit Bergen and Trondhjem, and the "Achilles" and "Natal" Trondhjem and Bergen, in the order given, from June 16th to 22nd and June 23rd to July 1st respectively. Rear-Admiral W. C. Pakenham, commanding the Third Cruiser Squadron, with the "Antrim," "Argyll," "Devonshire" and "Roxburgh," was to visit Christiania and Copenhagen. This squadron was to be at Christiania from June 15th to 23rd, except the "Argyll," which was to visit Christiansand at the same time, rejoining the flag off the Skaw; but the whole squadron was to visit Copenhagen from June 24th to July 1st.

FLEET MOBILIZATION.—Following the visits above described, the squadrons were to proceed to the Channel, where it has been arranged that practically the whole of the effective fleet, as far as battleships and cruisers are concerned, are to assemble by the middle of July. Between July 15th and 25th the men of classes "A" and "B" of the Royal Fleet Reserve are being called out for training, in connection with the test mobilization of the Third Fleet which is being carried out in place of grand manœuvres. The presence of the First and Second Fleets ships in the Channel as well will result in a large gathering, and it has been estimated that no less than 400 pennants will be flying altogether. On July 18th, King George has graciously consented to visit the combined Fleets at Spithead. The cadets of the Royal Naval Colleges at Osborne and Dartmouth are to be embarked in vessels of the First and Second Fleets at Spithead from July 18th to 20th. This course has its origin in the plan by which each cadet at the Dartmouth College has a war station on board a ship of the Fleet which he would immediately take up in case of war. It has been decided to test the arrangements for embarking these cadets, and at the same time to extend the system for this trial to the Osborne cadets, in order that they also may obtain some insight into the conditions of life afloat during the week-end they spend on board the ships. In regard to the calling up of the Royal Fleet Reserve, a special bonus of £1 will be given to men who carry out this training, which will count instead of the week's drill at the home ports which they are required to perform in 1914, and also instead of the week's drill due to be carried out in 1915; that is to say, men called out in July will not be required to carry out any further drill or training

in 1914 or 1915. Referring to the matter in his speech on March 17th. Mr. Churchill said that the Admiralty had had the most admirable response to their invitation to the reservists. There were 10,170 seamen and other bluejackets and 4,009 marines required to man these ships, he said, and in a few days the authorities had received replies from 10,334 men volunteering and 3,321 marines.

AUSTRIAN AND FRENCH VISITS.—A squadron of the Austrian Navy made a six days' visit to Malta in May, arriving on the 22nd. The squadron consisted of the "Viribus Unitis" and "Tegetthoff," of the "Dreadnought" type, and the "Zrinyi," and was under the command of Vice-Admiral Löffler. The Austrian officers and men were cordially welcomed and entertained by the British officers and men of the Mediterranean Fleet, under the command of Admiral Sir A. Berkeley Milne. The flagship, the "Tegetthoff," was moored opposite the British flagship "Inflexible," and a telephone was fitted up between them; the "Viribus Unitis" was moored opposite the "Indomitable" and the "Zrinyi" opposite the "Warrior." The visit of the French squadron to Portland in June is notable as being the first occasion upon which submarines have been included.

SQUADRON CHANGES.—On May 13th the light cruiser "Bristol," Captain B. H. Fanshawe, serving in the Second Fleet at Portsmouth, was brought up to full complement for service in the West Atlantic in place of the "Hermione," Captain H. M. Doughty, which is ordered to return to England. The "Hermione" is now over twenty years old, having been launched at Devonport on November 7th, 1893. A sister ship, the "Astræa," Captain A. C. Sykes, which was launched at Devonport on March 17th, 1893, is also to be relieved by a vessel of the new "City" class, the "Nottingham," Captain C. B. Miller, which is to join the Cape of Good Hope Squadron in August. The battleship "Duncan," Captain F. A. Whitehead, having been ordered to be detached from the Sixth Battle Squadron and from duty as gunnery training ship at Portsmouth to pay off into the Third Fleet for a long refit at Chatham, is to be relieved by the "Queen," Captain H. A. Adam, until recently flagship of the Vice-Admiral Commanding Second and Third Fleets.

"MARLBOROUGH" COMMISSIONED.—The battleship "Marlborough" was placed in commission at Devonport on June 2nd by Captain E. P. F. G. Grant, from the "King Edward VII.," for duty as flagship of the Vice-Admiral Commanding the First Battle Squadron. The flag of Vice-Admiral Sir Lewis Bayly, the newly-appointed commander of this squadron, was ordered to be transferred from the "King Edward VII." to the "Marlborough" on June 23rd, and the flag of Vice-Admiral the Hon. Sir Stanley Colville to be struck in the "Collingwood," Captain J. C. Ley, on the previous day. With the entry into service of the "Marlborough," the "Collingwood" becomes a private ship in the First Battle Squadron, while the "Temeraire," Captain E. S. Alexander-Sinclair, was ordered to be transferred to the Fourth Battle Squadron.

NEW BATTLESHIPS ORDERED.—Contracts for the two battleships of the 1914-15 programme, which the First Lord announced on March 17th were to be accelerated to take the place temporarily of the proposed Canadian "Dreadnoughts," were made in May with the firms of Messrs. Palmer's Shipbuilding and Iron Company, Jarrow, and the Fairfield Shipbuilding and Engineering Company, of Clydebank. The Palmer's vessel will be

named the "Repulse," and that of Messrs. Fairfield the "Renown." Names have also been chosen for the two dockyard ships. That at Portsmouth will be called the "Agincourt," this vessel being of the "Queen Elizabeth" class; while that at Devonport will be known as the "Resistance," as this ship is to be of the "Royal Sovereign" type, of which all the vessels have received names beginning with the initial "R."

"GALATEA" LAUNCHED.—The light cruiser "Galatea" was launched from the yard of Messrs. Beardmore & Co., Dalmuir, on May 14th, the naming ceremony being performed by Lady Lilian Grenfell, a cousin of the First Lord of the Admiralty. Of the three oil-fired light armoured cruisers of the 1912-13 programme ordered from Messrs. Beardmore, the "Galatea" is the first to be launched. The second is due to be put afloat in the first week of July, and will be named the "Inconstant." The keel of the "Galatea" was laid on January 9th, 1913; that of the "Inconstant" on April 3rd, 1913; and that of the "Royalist," the third vessel, on June 3rd, 1913. With the launch of the "Galatea," four of the eight light cruisers of the 1912-13 batch are in the water, and all four have had their commanding officers appointed. Captain B. S. Thesiger, from Chatham War College, will commission the "Arethusa" when ready; Captain A. G. Hotham, late of the "Æolus," the "Aurora"; Captain H. R. Crooke, Assistant Director of Naval Equipment, the "Undaunted"; and Captain T. D. Pratt, late of the "Amphion," the "Galatea."

AUSTRALIAN SUBMARINES.—On May 25th, the first two submarines for the Royal Australian Navy arrived at Sydney. They had made the voyage from England in twelve weeks under their own motive power. This is the longest journey ever made by submarines under such conditions. The smaller British boats sent to China early in 1911, "C.36," "C.37," and "C.38," only proceeded as far as Malta using their own engines, and were towed from thence to Hong-Kong by cruisers. The Australian vessels, as mentioned in the JOURNAL for February last, are of the "E" type, with a submerged displacement of 800 tons as compared to the 321 tons of the "C" class. They were commanded during the voyage by officers of the Royal Navy, lent for duty under the Australian Government, "AE.1" being under the command of Lieutenant-Commander T. F. Besant, formerly in command of "C.30" at Dundee; and "AE.2" under the command of Lieutenant H. H. G. D. Stoker, formerly commanding "B.8" at Gibraltar. From Portsmouth to Colombo the boats were convoyed by the "Eclipse," Captain F. Brandt, from Colombo to Singapore by the "Yarmouth," Captain H. L. Cochrane, and from Singapore to Sydney by the Royal Australian cruiser "Sydney," Captain J. C. T. Glossop. It was during the time that Admiral Sir Wilmot Fawkes was Commander-in-Chief in Australia (from 1905 to 1908) that arrangements were made for sending men from the Commonwealth to qualify in the British naval schools, including that of the submarine branch, and it is owing to this forethought that a large proportion of the crews of the two new boats are Australians.

SEAPLANE ACCIDENT.—A fatal accident, involving the death of two officers, occurred to seaplane No. 128 on June 4th. The machine left Calshot Air Station about 4 o'clock on that afternoon, piloted by Lieutenant T. S. Creswell, R.M.L.I., with Commander Arthur Rice as a passenger. Manœuvres with three other naval machines were carried out over Southampton Water, and the seaplanes were returning when No. 128

was seen to fall into the water near Calshot Spit Lightship. The height was between 500 and 600 ft., and the machine sank immediately. Both officers were drowned, and the body of Lieutenant Creswell was recovered with the wreckage, but that of Commander Rice was not found at once. King George was graciously pleased to give directions for his sympathy to be conveyed to the relatives of the deceased officers.

FOREIGN POWERS.

AUSTRIA-HUNGARY.

THE FOUR NEW BATTLESHIPS.—In regard to the four new Dreadnoughts for Austria-Hungary referred to in last month's JOURNAL, it is stated that two will be laid down in the present year and two in 1915. The months of August and October are mentioned for the beginning of the first two, but the 1915 ships will be laid down in the spring. A significant feature of their design as at present revealed is that the method of distributing the heavy guns has been changed from that in the "Viribus Unitis" class, and instead of four triple turrets there will be five twin turrets. That the calibre of the heavy guns has been raised from 12-inch is certain, but it is not known definitely whether the new weapons will be of 14-inch or 15-inch calibre. Anti-aircraft guns are also to be carried in the new vessels.

OIL ENGINE TRIALS.—It is reported that the torpedo gun vessel "Lussin" has been experimentally fitted with heavy oil engines for propulsion. She is the first vessel of the Austrian Navy to be equipped with internal combustion machinery, apart, of course, from submarines, although the surface propulsion of the latter is by petroleum motors. The "Lussin" is an old vessel, built at Trieste in 1883, and has a displacement of 1,011 tons. Originally she was fitted with horizontal compound steam engines of 1,830 horse-power, giving a maximum speed of 14 knots, the boilers being of the Dürr pattern. The nature or power of the heavy oil motors which have now been given to her for trial have not been disclosed.

BRAZIL.

A THIRD DREADNOUGHT.—Having disposed of the battleship "Rio de Janeiro" to Turkey in accordance with the decision arrived at in October, the Brazilian Government has announced its intention to have built a larger vessel in her place. A Reuter telegram from Rio de Janeiro on May 11th stated that the new ship would be of 30,000 tons and carry 15-inch guns. The contract was to be signed shortly, added the message, by the Minister of Marine and a representative of Messrs. Armstrong, Whitworth and Co., who were the builders of the "Rio de Janeiro."

NEW SUBMARINES.—There have been launched at the Fiat-San-Giorgio yard at Spezia three submarines for the Brazilian Navy. They are the first under-water vessels yet built for Brazil. The type is similar to that of the Italian submarine "Medusa," which is of 241 tons on the surface and 295 tons when submerged, and has engines of 600 surface horse-power giving a speed of 13 knots. The Brazilian boats, however, are somewhat larger, their displacement on the surface being 249 tons, and submerged 370 tons, while they are reported to have a surface speed of 14 knots. Each boat has two torpedo tubes.

FRANCE.

VISIT TO PORTLAND.—A squadron of two cruisers, ten destroyers and six submarines, under the command of Rear-Admiral Rouyer, arrived at Portland on June 13th on a six days' visit. The presence of the vessels was stated to have no political or international significance, but to be of a similar character to the calls at Cherbourg, Brest, and other ports which British squadrons have recently made in the course of their training and exercise cruises. The cruisers were the "Marseillaise," Captain Exelmans, flagship; and the "Amiral Aube," Captain Viard. The destroyers were the "Capitaine Mehl," Lieutenant Rossignol, flying the pennant of Captain Lavenir, chief of the division; "Francis Garnier," Lieutenant De Pianelli; "Obusier," Lieutenant Brinquier, with Commander Pioger, commandant of the First Destroyer Flotilla; "Carquois," Lieutenant De Guillebon; "Oriflame," Lieutenant Le Gall; "Etendard," Lieutenant Nielly; "Tromblon," Lieutenant Guy; and "Branlebas," Lieutenant Jourdain. Two other destroyers, the "Francisque" and "Fauconneau," were present in attendance upon the submarines, the former, commanded by Lieutenant Lemoine, flying the pennant of Commander De Cacqueray, commandant of the First Submarine Flotilla, and the latter commanded by Lieutenant Vinsot, commandant of a submarine division. Attention was principally directed, however, to the submarines of the squadron, as it was the first time such craft had made a visit to England. The boats were the "Germinal," Lieutenant Bourdeaux; "Watt," Lieutenant Gelis; "Floreal," Lieutenant Desprez-Bourdon; "Prairial," Lieutenant Le Masne; "Ventose," Lieutenant Baret; and "Berthelot," Lieutenant Thiebaut. Completed in 1907-09, with displacements ranging from 390 to 402 tons, these submarines more nearly resemble the "C" class in the British Navy than any other. They have a speed on the surface of 12½ knots, steam engines for surface propulsion of 700 horse-power, carry six torpedo tubes, and have crews of 24 officers and men.

RAISING OF THE "LIBERTÉ."—It is announced that the hull of the battleship "Liberté," which was sunk by fire and explosion in Toulon harbour on September 25th, 1911, when 226 men were killed and about 184 others injured, is to be raised. The French Ministry of Marine has decided to enter into a contract for the completion of the work within four years. The wreck lies in five fathoms of water. It will be completely surrounded by a large coffer-dam, and with this water-tight wall all round it the hull will be pumped dry; it is then to be broken up into fragments small enough to be raised by floating cranes.

GERMANY.

SPRING MANŒUVRES.—The 1914 spring manœuvres of the German High Sea Fleet began on May 19th, and were attended by every available battleship and cruiser of the fleet, and also by a number of seaplanes, submarines, and other torpedo craft. Since the 1913 spring manœuvres, the four armoured ships of the 1910 programme had been passed into active service, these being the battleships "Kaiserin," "König Albert," and "Prinzregent Luitpold," and the battle-cruiser "Seydlitz." The ships assembled this year at Kiel, and left there for a cruise in Danish waters. At the end of May, when the operations concluded, it was stated that there had been no serious engine-room or other defects.

According to the Berlin correspondent of the *Naval and Military Record*, "most of the work was done by torpedo-boats, submarines, and light cruisers, and consisted of torpedo running, gun practice, steaming tests, and night attacks by the flotillas. A newspaper correspondent who was present on board the cruiser 'Danzig' speaks of the wonderfully accurate torpedo practice made by the boats during a night attack, when five out of six torpedoes discharged hit the mark."

ATLANTIC CRUISE.—The cruise of the battleships "Kaiser" and "König Albert" and light cruiser "Strassburg" to West African and South American ports was concluded in May. The vessels left Wilhelmshaven on December 9th, intending to make a three-months' cruise, but this time was extended to over five months. In this period they travelled over 20,000 miles, a distance which the *Marine Rundschau* states is a record for turbine-driven battleships in the time occupied. In addition to raising German prestige in the places visited, the cruise has demonstrated the steaming and other capabilities of the vessels taking part.

BATTLESHIP ORDERED.—It was announced in May that the order for the battleship "Ersatz-Kaiser Friedrich III." had been placed with the Germania yard at Kiel, where the battleships "Posen" and "Prinzregent Luitpold" were launched in 1908 and 1912 respectively. The new vessel belongs to the 1914 programme, and is the only battleship provided for this year. The old battleship "Kaiser Friedrich III." is of 10,474 tons, and was launched at Wilhelmshaven in 1896.

GREECE.

OFFERS FOR BATTLESHIPS.—The Greek Government, pursuing its quest for additions to its armoured fleet, has made an offer to purchase the American battleships "Idaho" and "Mississippi," launched in 1905 and completed in 1908. On May 28th it was announced that the Secretary of the United States Navy had proposed to sell the vessels at cost price. He asked the Senate Naval Affairs Committee for an amendment to the Naval Appropriation Bill permitting the sale and providing that the proceeds, which would amount to £2,400,000, should be used in the construction of a new "Dreadnought" in addition to the two already provided for in the Bill as it passed the House. On June 1st, the Senate adopted the amendment.

NEW CONSTRUCTION.—The light cruiser and destroyers referred to last month as having been ordered in Great Britain will, it is understood, be built by Messrs. John Brown & Co., and the Fairfield Shipbuilding and Engineering Co., which combination is associated with the Coventry Ordnance Works for the provision of armament, and the armour-plate works of Messrs. Cammell, Laird and Co. The cruiser, of 5,600 tons, will have a speed of 25 knots. The destroyers, of which there will be at least four, will have a speed of 35 knots.

PROMOTIONS AND RETIREMENTS.—A telegram from the Athens correspondent of *The Times*, dated May 5th, stated that seven new rear-admirals had been appointed in the Greek Navy. Though two had retired on half-pay, there remained seven on the active list, including Rear-Admiral Mark Kerr. The correspondent remarked that it was not easy to see where commands were to be found for them all. Among the promotions were those of Commander H. S. Cardale, who is serving as

Commodore of the Greek torpedo flotilla, and Commander R. G. H. Henderson, one of the gunnery officers of the staff under Rear-Admiral Kerr. In the first week of May, it was reported that Vice-Admiral Paul Condouriotis, the Commander-in-Chief in the Ægean Sea, had resigned his command.

NORWAY.

BATTLESHIP LAUNCHED.—The coast defence battleship "Nidaros" was launched from the yard of Messrs. Armstrong, Whitworth and Co. on June 9th. She is one of a pair of vessels ordered from the Elswick yard last year, the other being the "Bjorgvin," which is expected to be launched on July 11th. The completion of these vessels will increase the number of Norwegian battleships from four to six, all of which will have been built in England. The dimensions and other particulars of the "Nidaros" are as follows:—Length over all, 310 ft.; length between perpendiculars, 290 ft.; breadth moulded, 75 ft.; depth, 26 ft.; draught of water, 26½ ft.; displacement, 4,825 tons; speed, 15 knots; belt armour, 7-in. to 4-in.; barbette armour, 8-in.; citadel armour, 4-in.; armaments—two 24cm., 9.4-in., 50-cal. guns, single mounted in armoured gun houses; four 15cm., 6-in., 50-cal. guns, ditto; six 10cm., 4-in., 50-cal. guns; machine and boat guns; two submerged torpedo tubes (18-in.).

SPAIN.

NEW PROGRAMME.—In the Spanish Chamber on May 7th, says *The Times*, the Minister of Marine brought in a Bill providing for an annual credit of 36,000,000 pesetas (about £1,400,000) over a period of nine years, to be devoted exclusively to naval construction so as to give constant work to the Spanish dockyards and to ensure the development of the Spanish shipbuilding industry. The Bill sets forth that the following work will be carried out in Spanish dockyards in 1915—16—17:—A battleship costing 70,000,000 pesetas, which will be laid down as soon as the battleship "Jaime I." is launched, and will herself be launched in 1917; a battleship to be laid down in 1917; a fast cruiser of 1,000 tons, costing 4,500,000 pesetas, to be commissioned in 1917; a similar cruiser on account of which a credit of 2,500,000 pesetas is provided by 1917; three submarines, costing 3,000,000 pesetas each, to be commissioned in 1918. Several other credits will be devoted to the purchase of plant, notably two docks for the Ferrol Dockyard, including one 230 metres long. The cost of these docks will be 11,000,000 and 4,000,000 pesetas respectively. Nine million and a half pesetas will be devoted to dredging and other works at the harbour and dockyard at Cadiz. The Minister of Public Works will at once undertake the improvement of railway communication with the three ports serving as naval bases.

TURKEY.

NEW CONSTRUCTION ORDERS.—Several orders for new vessels have just been placed by Turkey with firms in England and France. Messrs. Vickers have received an order for a battleship similar to the "Reshadieh," which they are now fitting out at Barrow for Turkey. With the ex-Brazilian battleship recently purchased, Turkey will thus have three "Dreadnoughts" built and building in a short time. The other ships to be built include two scouts, whose hulls will be constructed on the Tyne and the machinery at Barrow; and six destroyers, the contract for which has been sub-let by the syndicate concerned—which consists of

Messrs. Armstrong and Messrs. Vickers—to Messrs. Hawthorn Leslie and Messrs. Stephenson, both Tyneside firms. A large floating dock is also contracted for, and while all the manufacturing work will be done at Barrow, the dock itself will be erected in France on account of the local scarcity of labour, which is said to be due to the want of housing accommodation. Messrs. Normand and Co., of Havre, have also received orders for 12 Turkish destroyers, six of which will be delivered forthwith and six in three years. The displacement of these boats will be 1,040 tons, and they will be oil-fired, each carrying 200 tons of crude petroleum (mazout) in their tanks. The trial speed is to be 32 knots. There will be five 4-in. guns and six 21-in. torpedo tubes in each vessel.

UNITED STATES.

APPROPRIATION BILL.—The House of Representatives on May 7th approved the Naval Appropriation Bill by 201 votes to 106. In the Bill, a programme of two battleships, six destroyers and eight submarines is provided for. For the last two years, only one battleship has been sanctioned by the House, and the vote in favour of two is attributed to the Mexican situation and the action of the President.

MILITARY NOTES.

BRITISH EMPIRE.

APPOINTMENTS, PROMOTIONS AND RETIREMENTS.—The following were the chief of these events during May:—

Lieut.-General Sir James Wolfe Murray, K.C.B., from General Officer Commanding-in-Chief, Scottish Command, to be General Officer Commanding-in-Chief in South Africa, vice Lieut.-General Sir R. C. Hart, V.C., K.C.B., K.C.V.O., dated April 18th, 1914. Lieut.-General Sir John Spencer Ewart, K.C.B., Aide-de-Camp-General to the King, to be General Officer Commanding-in-Chief, Scottish Command, vice Lieut.-General Sir J. W. Murray, K.C.B., dated 5th May, 1914. His Majesty, Christian X., King of Denmark, K.G., to be Colonel-in-Chief, the Buffs (East Kent Regiment), dated May 12th, 1914. Major-General Raymond N. R. Reade, C.B., to command the troops in the Straits Settlements, vice Major-General T. E. Stephenson, C.B., dated May 6th, 1914. Surgeon-General W. Babbie, V.C., C.B., C.M.G., British Service, to be Director, Medical Services, India, vice Surgeon-General Sir A. T. Sloggett, Kt., C.B., C.M.G., British Service, dated March 22nd, 1914. Major-General Sir Charles Henry Scott, K.C.B., to be Colonel-Commandant, Royal Artillery, vice General the Right Honourable Sir H. Brackenbury, G.C.B., K.C.S.I., dated April 21st, 1914. Colonel and Honorary Major-General Robert Hunter Murray, C.B., C.M.G., to be Colonel, the Seaforth Highlanders (Ross-shire Buffs, the Duke of Albany's), vice General Sir G. D. Barker, G.C.B., dated April 16th, 1914. Lieut.-General Sir John Eccles Nixon, K.C.B., Indian Army, to be General, vice Sir O'Moore Creagh, V.C., G.C.B., G.C.S.I., dated May 4th, 1914.

SUMMARY OF TRAINING ARRANGEMENTS, REGULAR TROOPS,
1914.

ALDERSHOT COMMAND.

1st Cavalry Brigade.—Brigade training, Aldershot, 13th-23rd July. Combined training with divisions, 29th July—8th August. Divisional training, Salisbury Plain, 27th August—5th September. Divisional and Command exercises, *en route* to manœuvre area, 7th-12th September. Army manœuvres in the manœuvre area, 14th-18th September.

1st Division: 1st Infantry Brigade.—Aldershot, 29th June—4th July. Goodwood, 6th-11th July. Divisional training, Aldershot, 13th-23rd July. Divisional and Command exercises, *1st* and *2nd Divisions*, Aldershot, 29th July—8th August. Army manœuvres, manœuvre area, 14th-18th September.

1st Division: 2nd and 3rd Infantry Brigades, and 2nd Division (less 4th Infantry Brigade): 5th and 6th Infantry Brigades.—Brigade training, Aldershot and vicinity, 29th June—11th July. Divisional training, Aldershot, 13th-23rd July. Divisional and Command exercises in the manœuvre area, *1st Division*, 7th-12th September. Inspection of *1st Division* by I.G.H.F., 7th-8th September, *2nd Division*, 10th-12th September. Army manœuvres, manœuvre area, 14th-18th September.

SOUTHERN COMMAND.

2nd Cavalry Brigade.—Brigade training, Salisbury Plain, 3rd-16th August. Divisional training, Salisbury Plain, 27th August—5th September. Divisional and Command exercises, *en route* to manœuvre area, 7th-12th September. Army manœuvres, 14th-18th September. Inspection of *2nd Cavalry Brigade* by I.G.H.F., 24th and 25th August.

3rd Division: 7th Infantry Brigade.—Brigade training, near Salisbury Plain, 31st July—8th August. *8th and 9th Infantry Brigades*—Brigade training, Salisbury Plain, 18th-26th August. *7th, 8th and 9th Infantry Brigades*—Divisional training, Salisbury Plain, 31st August—5th September. Divisional and Command exercises in manœuvre area, 10th-12th September. Inspection of *3rd Division* by I.G.H.F., 10th and 11th September. Army manœuvres, 14th-18th September.

EASTERN COMMAND.

4th Cavalry Brigade.—Brigade training, Salisbury Plain, 17th-26th August. Inspection by I.G.H.F., 24th and 25th August. Divisional training, Salisbury Plain, 27th August—5th September. Divisional and Command exercises, *en route* to manœuvre area, 7th-12th September. Army manœuvres, 14th-18th September.

4th Division: 10th, 11th and 12th Infantry Brigades.—Brigade training, manœuvre area, 24th August—1st September. Divisional training, manœuvre area, 2nd-9th September. Divisional and Command exercises, manœuvre area, 10th-12th September (takes part in the operations during the inspection of the *3rd Division* by I.G.H.F.). Army manœuvres, 14th-18th September.

LONDON DISTRICT.

4th Infantry Brigade (Foot Guards).—Brigade training, manœuvre area, 2nd-9th September. Divisional and Command exercises, manœuvre

area (with the 2nd Division), 10th-12th September. Army manœuvres, 14th-18th September.

IRISH COMMAND.

3rd Cavalry Brigade.—Brigade training, Curragh and Galway, 20th July-14th August.

5th Division.—Brigade training—*13th Infantry Brigade*, near Tullow (Co. Carlow), 31st August-12th September. *14th Infantry Brigade*, near Castlecomer (Co. Kilkenny), 29th August-10th September. *15th Infantry Brigade*, near Borris (Co. Carlow), 29th August-12th September. *13th, 14th and 15th Infantry Brigades*, Divisional training, Queen's County, Kilkenny and Carlow, 13th-20th September.

6th Division.—Brigade training—*16th Infantry Brigade*, Tallow (Co. Waterford), 31st August-11th September. *17th Infantry Brigade*, Lisnagar, near Fermoy, 31st August-11th September. *16th and 17th Infantry Brigades*, Divisional training, between Kilworth Camp, Moore Park, and Dungarvan, 15th-23rd September.

NORTHERN COMMAND.

5th Cavalry Brigade.—Brigade training, Salisbury Plain, 17th-26th August. Divisional training, Salisbury Plain, 27th August-5th September. Divisional and Command exercises, *en route* to manœuvre area, 7th-12th September. Army manœuvres, 14th-18th September.

18th Infantry Brigade.—Brigade training, manœuvre area, 24th August-1st September. Divisional training, manœuvre area, 2nd-9th September. Divisional and Command exercises, manœuvre area (and takes part in the operations during the inspection of the 3rd Division by I.G.H.F.), 10th-12th September. Army manœuvres, 14th-18th September.

TERRITORIAL UNITS FOR THE MANŒUVRES.

In the army manœuvres, which take place in the West Midlands during September, a large number of Territorial troops are to be employed. The muster of these units will reach a total of about 9,000, a higher number than those of former years. The force to be employed is as follows:—

Notts and Derby Mounted Brigade.—The Sherwood Rangers, South Nottinghamshire Hussars, Derbyshire Yeomanry, Nottinghamshire Royal Horse Artillery, Notts and Derby Brigade Signal Troop, Notts and Derby Brigade Transport and Supply Column, Notts and Derby Brigade Field Ambulance.

Welsh Border Mounted Brigade.—Shropshire Yeomanry, Earl of Chester's Yeomanry, Denbighshire Hussars, Duke of Lancaster's Own, Shropshire Royal Horse Artillery, Welsh Border Brigade Signal Troop, Welsh Border Brigade Supply and Transport Column.

Cheshire Brigade R.F.A.—1st, 2nd and 3rd Cheshire Batteries, 3rd Welsh Ammunition Column.

Welsh Border Infantry Brigade.—1st, 2nd and 3rd Monmouthshire Regiments, 1st Herefordshire Regiment, Welsh Border Signal Section, Western Wireless Signal Company, Western Cable Signal Company, Western Airline Signal Company, Welsh Border Brigade A.S.C. Company.

These Territorial troops will train in the manœuvre area north of Hereford and Worcester from September 5th to 15th, and then join the Army Exercise until September 19th.

AUSTRIA-HUNGARY.

THE IMPERIAL MANŒUVRES will be held this year about the western frontiers of Hungary in the region between the Alps and the Danube, containing the towns of Güns, Steinamanger, Körmend and Sarwar. There are throughout good communications, both Steinamanger and Körmend lying at the junction of several lines of railway: the roads are good and numerous. The country is described as being ideal for manœuvres; the slopes of the western Alps descend gently towards Güns and Körmend and to the north of Steinamanger there are some isolated hills, from which extends the great plain of Hungary. This is very undulating, affording plenty of cover for the movement of troops and possessing many admirable artillery positions, while it is also much wooded. The rivers are all passable except the Raab, which, near Körmend, is both wide and deep.

The troops taking part in the grand manœuvres—which will last from September 2nd to the 5th—are the IIIrd Corps from Gratz, the Vth from Pressburg, the XIIIth from Agram, and portions of the IInd from Vienna and of the IVth from Buda Pesth. The two armies are to be commanded by Baron Leithner, the Inspector-General, and General von Böhm-Ermolli, commanding the 1st Army Corps; each will have under him two corps and a cavalry division.

In addition to these operations, manœuvres on a minor scale will take place at the end of June in Bosnia-Herzegovina and will last three days. The XVth and XVIth Army Corps will be engaged.

BELGIUM.

ARMY REORGANIZATION.—Some details have already been given in these notes as to the many reforms contemplated, and now in process of being carried out, by the Belgian Government in the reorganization of the Army on modern lines, but the following may be of interest. Compulsory service has become the law of the land, although no more than 50 per cent. of the recruit resources of the country are to be tapped. The remainder are exempted, not by ballot but by a law regulating exemption based on the number of sons given by families to the military service of the country. The annual levy will be 35,000 of which 2,000 will be voluntarily enlisted; the peace establishment will be 60,000, while on a war footing the Army will contain some 350,000 of all ranks. The new organization of units, which commenced on December 15th last, is now practically completed: certain new units have still to be created between this and 1917, and among these are two regiments of cavalry to form a cavalry division of three brigades, each of two regiments, and a certain number of field artillery brigades—particularly of howitzers, the material for making which is still under experiment. The expenses necessary for the military reforms contemplated are calculated at £2,800,000 for new constructions and £720,000 for two camps of instruction. On the other hand the estimated cost of the proposed fortifications for Antwerp has now increased by over £700,000 by reason of the enhanced cost of production, etc., and the total expenditure under this head will now amount to not less than £3,220,000. Other expenses, armaments, horses, supplies of all kinds, will cost another £4,000,000, making a total extra army estimate of not far short of seven and a half million of pounds sterling.

The strength of the Belgian Army being for the future to be practically doubled, a very large increase has become necessary in the strength of

the Corps of Officers, and non-commissioned officers for the constitution of the cadres. But while for financial reasons it was out of the question to consider this enormous augmentation of personnel during peace, a proportion of the extra number required was to be drawn from the more highly trained portion of the Army which the new law would attract to the Colours. It thus became necessary to look to the formation of complementary or reserve cadres, and a call will be made (1) upon volunteer non-commissioned officers now serving or on *congé illimité*, who can pass a certain standard of military education; (2) on volunteers from the militia fulfilling certain conditions; (3) Army officers wishing to transfer to the reserve; and (4) on retired officers of recognised ability.

GERMANY.

REMOUNT OPERATIONS IN 1913.—The German Remount Commissions purchased during 1913, 16,471 young and 21,064 aged horses for the whole Empire. This large increase in purchases is consequent upon the action of the law introduced on July 3rd last which directed an augmentation of 31,298 horses, due to the Budget proposals of 1912. About 7,500 extra remounts will be bought during this year.

The five Prussian remount commissions purchased 13,073 young horses, the majority in East Prussia, and 17,200 aged remounts.

Bavaria purchased 1,815 young and 1,803 aged remounts; Saxony 1,331 and 1,433, and Wurtemberg 352 young horses and 357 aged remounts.

The purchase price is now no longer published, but it is probably considerably higher than in 1910, when the average price paid was 1,065 marks: it is now believed to be 1,400 marks. Nearly all the cavalry horses come from East Prussia and Hanover, the field artillery draw theirs from Holstein, Oldenburg, Bavaria, Saxony and Wurtemberg, while the remounts for the heavy artillery come from the Rhineland, Schleswig and Bavaria.

UNITED STATES.

AFFAIRS IN MEXICO.—The prospects of a settlement being arrived at through the medium of the representatives of the Argentine, Brazil and Chile became clouded on May 1st, when General Carranza intimated his refusal to consider any question of an armistice as between himself and General Huerta; also it was announced that he had ordered the immediate mobilization of 12,000 troops with whom he proposed attacking Tampico, while Huerta was occupied with the Americans at Vera Cruz. On May 2nd it was stated that Rojas, Huerta's Foreign Minister, had resigned, and that Huerta himself was seriously thinking of following suit—an act which, however desirable were even a provisional president and government ready to take his place, could under existing circumstances only be regarded as the prelude to a temporary reign of terror, necessitating the possible intervention of another Power. On the 3rd, General Carranza announced that, while he refused to consider the question of an armistice, he was willing to send a representative to the conference, now to be held at Niagara, but the mediators have from the first adopted the standpoint that the representatives of Carranza and Villa must be excluded from the conference so long as they refuse to be parties to any armistice. On the 4th, General Funston, the American commander at Vera Cruz, reported that General Maas, the Federal Commander, had placed 10,000 men *à cheval* the railway to Mexico City between 20 and 30 miles from Vera Cruz; while on the same day the Constitutionalists at Tampico warned the United

States naval commander, Admiral Mayo, that any attempt by his ships to enter the Panuco river would result in the oil reservoirs above the city being emptied and the oil set on fire. On the 7th it was rumoured that the Constitutionalists were pushing south and had already won two victories, while at Vera Cruz General Funston advanced his outposts somewhat so as to safeguard the waterworks, an act which, however desirable from the American point of view, was with some reason looked upon by Huerta's party as a violation of the armistice. The Washington Government would seem to have hoped that the mere presence of their forces at Vera Cruz would contain those at the disposal of General Huerta without the formality of a declaration of war, while the Constitutionalist forces would occupy themselves in accomplishing the defeat of the President's troops and the overthrow of his Government; but it would appear that this was a view with which from the first the United States naval and military authorities have not been in agreement. The War Office is stated to have contemplated an immediate advance so soon as the fleet arrived off Vera Cruz, and could at that time, so it is declared, have found 25,000 men for the purpose. As a result of the delay twice that number of troops would now hardly suffice. But the militias of New York, Pennsylvania and Ohio are being prepared for mobilization, although the President is strongly opposed to the despatch of any more troops to Vera Cruz, and is disinclined to sanction the passage of an emergency military supply bill, without which reinforcements cannot be sent nor an expeditionary force mobilized. In Vera Cruz all possible precautions are being taken against yellow fever, and Surgeon-General Gorgas, whose chief assistant has been transferred from Panama to Vera Cruz, is of opinion that it will be possible to keep off this scourge.

According to the intelligence which has filtered through to Europe, the fighting for Tampico between the Federals and the Constitutionalists was of a particularly desperate character and lasted for several days. On the 13th the Federals began to evacuate the city and the bulk of Huerta's forces—as also three Federal gunboats which had assisted in the defence—appears to have escaped. A further stand was to be made at San Luis Potosi, described as a good strategic position. The followers of Carranza and Villa seem, as was perhaps to be expected, to have got very much out of hand when Tampico was captured.

The conference, arranged to open on May 18th, actually met for the first time on the 20th, and was greeted by the news that Huerta was contemplating resignation—under certain conditions. This again was countered by a demand by the Constitutional party that Huerta's resignation must be unconditional, while the United States Government is believed to have made it clear that it would recognize no government in Mexico which contained any of Huerta's adherents, and that under no circumstances would the American troops be withdrawn from Vera Cruz until a reformed and stable administration had been established. The first meeting of the mediators was marked also by the receipt of news of the continuance of fighting and of the success of the Constitutional party at Saltillo and San Luis Potosi. These victories have been signalized by barbarities, Villa having caused to be shot over 30 officers who had been captured, an action which is held by its perpetrators to be justified as a retribution for the execution of Madera by General Huerta. On the 22nd, General Carranza made known his intention of sending a representative to the conference, but the mediators have from the very first been firm in refusing to admit one, unless the Constitutionalist leader will first agree

to be a party to the armistice arranged between Presidents Wilson and Huerta.

Taking advantage of the armistice, General Huerta has succeeded in landing at Puerto Mexico from two German ships large consignments of arms and ammunition, amounting, it is said, to over 20,000 modern rifles, 250 machine guns and something like 17 million cartridges.

Up to the end of May the Peace Conference seemed to be progressing satisfactorily; the mediators and the delegates appeared to have agreed upon a plan of settlement of the Mexican difficulty, and it had been decided that the executive power should be transferred from General Huerta to a provisional president, who should be generally acceptable, and who should be assisted by a Cabinet of four members. The Conference had, however, reckoned without General Carranza, who, in a statement issued at Durango on June 1st, not only repeated his refusal to agree to any armistice, but declared that General Huerta and his party must be entirely and for ever eliminated, and finally refused to recognize any provisional government except his own. It was also rumoured that he had appointed himself Provisional President.

AERONAUTICAL NOTES.

BRITISH EMPIRE.

FATAL ACCIDENTS.—During May two fatal accidents occurred, resulting in the deaths of four Army airmen. On May 12th Captain E. V. Anderson, Black Watch, and a Flight Commander of No. 5 Squadron, and Air Mechanic Carter of the same squadron, were killed near Farnborough as a result of a collision between Sopwith biplanes Nos. 324 and 325, steered by Captain Anderson and Second Lieutenant C. W. Wilson, Special Reserve, attached to No. 5 Squadron. Carter was in the passenger seat of Second Lieutenant Wilson's machine. Both machines had been manœuvring for some time, and when at a height of between 400 and 500 feet the two machines met almost head to head and fell. Captain Anderson and Mechanic Carter were killed at once, but Second Lieutenant Wilson's injuries though severe, including a fractured jaw, were not serious.

Three days later, on May 15th, Lieutenant J. Empson, Royal Fusiliers, and Air Mechanic Cudmore were taking part, on a B.E. Biplane, No. 331, in the flight of ten aeroplanes from Montrose to Salisbury Plain, when on nearing Northallerton they came into a dense fog and crashed into a thick hedge. Both were terribly injured and death must have been instantaneous.

Advisory Committee for Aeronautics.

The following is the report by the Committee as to the strength of construction desirable in aeroplanes:—

Among the matters arising out of the Report of the Monoplane Accidents Committee, referred by the Army Council to the Advisory Committee for further investigation and report, were included the question of the strains and stresses in aeroplane wings and, generally, of the conditions necessary to ensure that the structural strength of aeroplanes should be sufficient to withstand the stresses they may have to bear in flight.

These questions have received the careful consideration of the Committee, and their investigations will be continued with a view to arriving at a satisfactory solution of the difficulties involved. A report has been prepared by Mr. L. Bairstow, of the National Physical Laboratory (Reports and Memoranda, No. 83), in which a preliminary discussion is given of some of the special points which arise in the calculation of the stresses in aeroplane wings, and suitable methods of calculation are indicated.

The Committee desire also to call attention to some important considerations of a general character relative to the strength of construction which it would appear desirable to attempt to obtain in the manufacture of aeroplanes. These considerations relate especially to the strength of the wing. The accumulation of data in regard to many of the elements of the problem is proceeding, and some of the figures adopted in the following statement can at present be regarded only as roughly approximate; in view, however, of the increasing severity of the conditions under which flights are now undertaken, the Committee are of opinion that the attempt should be made without delay to produce machines having a greater margin of strength than is at present ordinarily allowed for in aeroplane design.

Factor of Safety.—In relation to aeroplanes the term factor of safety is employed in a sense differing from that generally accepted in ordinary engineering usage. The engineer, after taking into account all known causes affecting the stresses a structure has to bear, allows a factor of safety to cover unknown sources of weakness, including defects of material and accidental errors of workmanship or of design. For the aeroplane the term is commonly used, however, in relation to the calculated stresses for normal horizontal flight, and these stresses are known to be considerably less than those which a machine must bear in ordinary use. When the load taken during horizontal flight at average speed in still air by any

part of the machine is $\frac{1}{N}$ th of the breaking stress of that part, N ,

according to present usage, is called the factor of safety. It may be difficult to disturb this use of the term, but it is unsatisfactory; normal flight is not in still air, and the maximum stresses do not ordinarily occur when the machine is horizontal. The average, and even the maximum, horizontal speed is largely extended when flight is downwards, and under various angles of flight the stress bears more heavily on one or another part. Turning introduces stresses of its own. The quantity N as above defined is thus to be regarded as made up of two separate factors, which we may denote by n and N_1 , so that we have

$$N = n N_1.$$

Of these, N_1 represents the maximum load, expressed as a multiple of the weight of the machine which, so far as our knowledge goes, it may be expected to carry in flight,* while n is a numerical factor by which we multiply N_1 in order to allow for uncertainty of calculations, flaws in the material, imperfect workmanship, and the like. Of the two factors, the term factor of safety applies strictly only to n , and in what follows it is proposed so to apply it.

* N_1 may perhaps be called the factor of loading, or briefly the "load factor." The calculation of the stresses on the wings of an aeroplane should properly be made for a load equal to the weight of the machine multiplied by the load factor.

We proceed to consider these two factors separately.

The weight of an aeroplane in horizontal flight in a steady wind is balanced by the resultant of the upward pressure on its wings, tail, etc., and the normal loading of the machine in this condition is equal to its weight. If the conditions of flight alter, the loading may be increased many times.

Among the causes which contribute to this increase are gusts of wind, banking and flattening out, and it is desirable to form some idea of the effect of each of these.

Gusts.—Consider an aeroplane moving at its maximum speed in a horizontal wind, and suppose it suddenly enters a region where the wind, instead of being horizontal, has an upward direction, its speed remaining without serious alteration. The machine then experiences an upward gust; the angle of incidence† on the planes is increased, the lift coefficient is increased, and the resultant upward thrust is in consequence increased. If we suppose that the maximum speed of the machine is twice its minimum speed, and that the attitude of the machine to the relative wind is so altered by the gust as to become that corresponding with the minimum speed, the lift coefficient will be increased four times by the change, and the loading immediately after entering the gust will be four times as great as previously; more generally the ratio of the two loadings will be equal to

(maximum speed/minimum speed)².

The question at once arises, is such a case possible? Can a machine travelling in a horizontal wind suddenly enter a region where the relative wind is inclined at some 10° to the horizon, thus causing an increase of this amount in the angle of incidence? Direct observations on vertical air currents are at present not numerous, but velocities of from 10 ft. to 15 ft. per second have been observed, and these would in some cases suffice to produce the effect described; while the fact that it has been the experience of many airmen to feel their machines drop away below them leads to the same conclusion, on the assumption that the magnitude of upward may be expected to be not less than that of downward gusts. This is borne out by a more complete calculation for certain aircraft, which leads to figures ranging from 3.0 to 3.8 in place of 4 given above. It would appear, then, that from this cause alone the loading may, in exceptional cases, be four times its normal value.

Banking.—This again causes an increase in loading corresponding with the angle of banking. If we take 45° as an angle often reached, the loading will be increased in the ratio $\sqrt{2}$ or 1.4 to 1, or, more generally, in the ratio sec. a to 1, if a is the angle the wings make with the horizontal.

Flattening Out.—The increase in loading due to this may be very great; it depends on the speed reached by the machine before flattening, and the rate at which the manœuvre is performed.

Let us take a machine in which the lift coefficient at maximum normal speed is one-quarter of the maximum lift coefficient, and suppose that in order to flatten out, the elevator is put instantaneously at its greatest or most effective angle; and that as a result the machine at once takes the attitude corresponding with maximum lift coefficient. The speed reached on a deep dive or glide before flattening may greatly exceed the maximum

† The angle of incidence is the angle between the chord of the wing and the direction of the relative wind.

horizontal speed; let us suppose it has doubled that value. Then, while flattening out, the speed is twice the normal maximum speed, the upward thrust sixteen times as great as its normal value, and the loading sixteen times as high as in steady flight.

A limit, however, is put to this, not only by the muscular effort required—it assumes that the elevator can be put over instantaneously, which is impossible—but also by the fact that the velocity reached in falling will necessarily be very much reduced in the process of flattening out before the attitude assumed is attained. A more careful calculation, based on the best data available as to the possible speed, and curvature of the path, would seem to show that in a case such as assumed the loading might be as much as eight times its normal value, but could hardly exceed this; and this figure can be greatly reduced by limiting the permissible speed of the machine.

Thus we have as outside figures:—

For gusts	...	...	...	4
For banking	...	...	...	1.4
For flattening out	...	...	...	8

with the fact that the last can readily be reduced to, say, six, if care is taken not to fly the machine at a speed much greater than its maximum normal horizontal speed.

The question next arises whether it is possible for these conditions to occur together. It is clear that (1) and (2) may happen simultaneously. A machine may encounter a gust when banking. To allow for this we must multiply the two numbers 4 and 1.4 together and we get 5.6 to 1 as the ratio in which the loading may be increased by gusts and banking combined. The probability that extra heavy loading as a consequence of a gust will occur at the exact moment of flattening out is not large, and we may deal with these two conditions separately. Even in the case of temporary loss of control, when exceptionally high velocities may be reached owing to a vertical fall, it must be remembered that the air pressure coefficient cannot exceed a certain maximum value, which occurs usually at an angle of incidence of about 16° .

We may thus, perhaps, conclude that with proper precautions an aeroplane will not in ordinary use be loaded to more than five or six times its weight. This would lead us to put

$$N_1 = 6$$

in our formula.

We have now to consider the value of n , the factor by which N_1 is to be multiplied to allow for various uncertainties; that is the factor of safety properly so called.

If usual engineering practice were followed, n would be considerable. The limitations imposed by the conditions of flight prevent this for the present, and we must be content to rely on careful inspection of work and materials and rigid tests, wherever possible, but it is clear that with the utmost care in the inspection and choice of materials n should be at least 2. This would make the value of N to be 12, and it is considered that this figure should be aimed at in the near future.

Thus, these considerations appear to make it desirable that aeroplanes should be so constructed as to carry twelve times their weight before failing at any point.

At present this desideratum is far from being reached. The figures before the Committee as to the value of N vary from 3 to 7,† and the Committee realize that it is not possible at once to attain so high a value as 10 or 12. They are strongly of opinion, however, that machines ought not to be accepted for service unless the value of N is not less than 6,§ and even then it would appear possible that an occasion may occur, under the worst conceivable conditions, when the machine will be loaded up to its calculated breaking stress.

The calculations should be made on the assumption that each part of the machine may have to bear the stress which would be produced by loading the machine to three times its weight; the stress thus found, when doubled, should be less than the breaking stress of that part of the machine.

It is hoped that aeronautical constructors may find it possible, within a comparatively short period, to allow in design for an increase in the value of N up to 12. It must be remembered in this connection that a machine may be dangerously strained under a stress appreciably smaller than that required to produce fracture. The Committee recognize, however, that there are circumstances, especially in the case of naval and military aeroplanes, in which the advantages to be gained by the utmost saving of weight cannot be neglected and which may preclude, for a time at least, the attainment of values of N so high as have been suggested.

It is proposed to investigate further the questions involved in the realization of the degree of structural strength which is held, on general grounds, to be desirable. In nearly all machines the parts in which weakness is most liable to occur are the main wing spars, and the weight of these spars is not large in comparison with the total weight of the machine.

Meanwhile attention should again be called to the fact that the exceptionally high stresses referred to in this Report do not occur under the ordinary conditions of flight provided a machine is carefully handled, and cannot arise to anything like the same degree in the less efficient types of machine.¶ In accordance with the recommendation of the Monoplane

† The following are the values of N found for the wing spars of a number of aeroplanes of different type, either by actual loading test, or by calculation, assuming that the centre of pressure may move, as the angle of incidence changes, over a distance from 0.28 to 0.5 of the chord from the leading edge:—

Type.	Value of N .	How determined.
A	4	By experiment.
B	4	"
C	5	By calculation.
D	3	"
E	3	"
F	4	By experiment.
G	7	By calculation.

§ Corresponding with a "load factor" of 3, that is, assuming the load a machine may have to bear in flight is three times its weight.

¶ By a "less efficient" machine is here meant one which flies normally under conditions corresponding with a high lift coefficient, and which cannot attain the maximum speeds now reached by some aeroplanes. Such "less efficient" machines have a relatively limited speed range.

Accidents Committee, the Committee desire to express the opinion that steep dives should be avoided, whether the engine is on or off, and, so far as is possible, care should be taken in descending that a speed exceeding by more than 15 or 20 per cent. the upper limit of the speed range is never reached.

In conclusion, the Committee recommends:

(i) That for the future no machine be accepted for service unless the strength of the wing structure is such that the ratio of the breaking stress of any part to the stress produced in that part by a load equal to three times the weight of the machine is at least two;

and

(ii) That steps be taken without delay with a view of raising this figure, as soon as may be found possible, to double the above value.

With regard to the latter recommendation, experiments are being undertaken to determine, with more accuracy than present knowledge renders possible, the actual maximum stresses which may occur due to gusts or to flattening out, and when turning.

THE SPEED OF AEROPLANES.

METHODS OF MEASUREMENT AVAILABLE.—In a paper read before the Aeronautical Society on May 7th, Dr. A. P. Thurston discussed methods of determining the velocity of the air, pointing out that the safety of an airman depends upon his knowing accurately the speed at which he is flying.

He distinguished three main methods. In the first the velocity is measured directly by the time taken by a particle, body, or substance floating in or dragged along by the air to travel from one point to another. All rotating helical vane instruments are generally included under this category. According to the second method the velocity is ascertained by measuring the mass of air passing a certain point in a given time, this mass being proportional to the product of the velocity and the density. An example of this type of instrument is afforded by a device developed by Professor Morris at East London College.

In the third method the velocity is obtained by placing an obstruction in the air and measuring the force exerted or the pressure generated at the obstruction. Instruments constructed on this plan consist of two distinct parts, one at which the pressure is generated and the other at which it is recorded. Two sub-classes may be distinguished. In one the resistance of a plate or body in a current of air is measured mechanically, examples being the air-speed indicators of Maxim and Scattergood. In the other there is a Pitot tube for ascertaining the dynamical pressure, having its open end facing the wind, and another tube for measuring the statical pressure of the air, together with a manometer for measuring the difference in pressure between the dynamical and statical tubes. For the last purpose many devices are employed, such as a liquid level gauge, a cylindrical or bell float in an enclosed vessel, a U tube mounted on a balance so that a difference of pressure in the two limbs causes a flow of liquid that upsets the equilibrium of the balance, a delicate Bourdon gauge, a piston and spring gauge, or an elastic diaphragm or chamber

gauge. The first three of these are gravity-controlled devices and are particularly suitable for use in the laboratory or for delicate work, while the last three are independent of gravity and are more suitable for use in actual flight, when a reasonably accurate "sight" reading is required which is unaffected by changes of acceleration or by shaking.

NOTICES OF BOOKS.

The War Office, Past and Present. By Captain Owen Wheeler: London: 1914: Methuen & Co., Ltd.

On opening this book one experiences a feeling of surprise that the work undertaken by Captain Wheeler has never before been attempted, and that it should now have been completed by one who has never served in the War Office and who has, therefore, no first-hand knowledge or experience of its methods. The absence of these qualifications, if such they be, is certainly no drawback to the accumulation and record of all the early history of the War Office, and of the more or less distinguished men who have at different times been at the head of the department concerned with the preparations for and conduct of war and with the administration of the Army generally. But it is when we come down to modern times, to the consideration of the events of the past fifteen, twenty, or even twenty-five years, that we seem to find in Captain Wheeler's narrative, not so much a want of perspective, as an absence of that knowledge of the inner working of the military machine, which might have made his later chapters of increased value to posterity, or even to our present younger generation. The first chapters make especially good and informing reading, and Captain Wheeler has provided a really interesting record, illumined by good stories, rescued from contemporary records, of the men who were connected with the management of the Army, and of the times during which they lived. On the whole his comments on the War Secretaries and War Office officials of those earlier times are very just; he distributes blame and credit where these are most deserved, and we shall probably all agree with him how much the army of the Crimean days owed to Hill, Sidney Herbert—to whom Captain Wheeler pays a very noble tribute—and others; and how little the Army of those times has to acknowledge of any debt to the great Duke. There can be no doubt that his influence was not, at least in later life, exerted for the betterment of the Army as a fighting machine; that under him the fruits of experience decayed rather than ripened; that he was not progressive, while he may almost be described as obstructive. Naturally much space is given to a consideration of the great reforms instituted by Lord Cardwell, and the author describes at length the administration of Mr. Stanhope and Lord Lansdowne, and the rule at the Horse Guards of the Duke of Cambridge and Lord Wolseley. It is when we get beyond these days that the record ceases to be perhaps quite so genuinely satisfactory and becomes slightly more partisan; but, then, the proper and impartial narration of the history of our own times is always a difficult, often an impossible, task, and it may be questioned whether anybody could have succeeded better than has Captain Wheeler in giving us an account of all the many changes of

great moment which have been initiated during a period which is so near to all of us. The author has, at any rate, given us a record such as was badly wanted, while his book is illustrated with many curious and interesting photographs and woodcuts.

CORRECTION.

In the review of the "Memoir of Major-General Sir Henry Tombs," in the May number of the JOURNAL, pp. 690 and 691, the authorship was incorrectly attributed to Brig.-General Holland instead of to Major-General H. Saward, Colonel Commandant, Royal Artillery.

FOREIGN PERIODICALS.

NAVAL.

AUSTRIA-HUNGARY.

MITTHEILUNGEN AUS DEM GEBIETE DES SEEWESENS. **June.**—The present position of wireless telegraphy installations. The history of the Danube Flotilla.† The torpedo and its use in war.† The naval increase of Holland for the safeguarding of its possession in the Indian Ocean.

FRANCE.

REVUE MARITIME. **March.**—The co-operation of arms at sea.§ The safety and scope of the Mercantile Marine.† **April.**—The co-operation of arms at sea.† The safety and scope of the Mercantile Marine.† Naval recollections of Surgeon Gestin.† A forgotten French port—Brouage, the dead city. **May.**—The memoirs of Dugay-Trouin. A forgotten French port—Brouage, the dead city.† Naval recollections of Surgeon Gestin.§

MONITEUR DE LA FLOTTE. **May 2nd.**—Naval or aerial torpedoes. **May 9th.**—The "Admiral" class. **May 16th.**—The torpedo service. Turbines. **May 23rd.**—The naval manœuvres.† **May 30th.**—The naval manœuvres.§

LA VIE MARITIME. **May 10th.**—The needs of naval defence. Naval attachés. The 50th anniversary of the invention of the torpedo. **May 25th.**—The Navy. For the mastery of the Mediterranean.

GERMANY.

MARINE RUNDSCHAU. **May.**—The English Colonial Navy.* Our Far Eastern possession and its relation to China. Lütfow. The study of the modern sea fight. Wireless telephones. The English naval estimates for 1914—15.

ITALY.

REVISTA MARITTIMA. **March.**—On the discharge of torpedoes. On the employment of radio-telegraphy for the regulating of chronometers and determination of longitude. A letter *re* station pointers.

*—to be continued.

†—continued.

§—concluded.

UNITED STATES.

NAVAL INSTITUTE PROCEEDINGS. **May.**—Not received.

MILITARY.

AUSTRIA-HUNGARY.

KAVALLERISTISCHE MONATSHEFTE. **May.**—Not received.

STREFFLEUR'S MILITÄRISCHE ZEITSCHRIFT. **March.**—Old batteries. Mountain warfare. Progress of foreign armies in 1913. Events in Libya after the Peace of Lausanne.†

BELGIUM.

BULLETIN DE LA PRESSE. **May 15th.**—A general view of the employment of infantry and artillery in the war in the Balkans.§ The reorganized Dutch Army.† **May 31st.**—The Imperial German Manœuvres in 1913.† The reorganized Dutch Army.†

REVUE DE L'ARMÉE BELGE. **March, April and May.**—Not received.

FRANCE.

REVUE MILITAIRE DES ARMÉES ÉTRANGÈRES. **April.**—The Belgian Army in 1914.* Thoughts on the Balkan Wars of 1912—13.* The Austro-Hungarian manœuvres of 1913. The Imperial German Manœuvres of 1913. **May.**—The Belgian Army in 1914.† Thoughts on the Balkan Wars of 1912—13.†

JOURNAL DES SCIENCES MILITAIRES. **April 15th. May 1st and 15th.**—Not received.

REVUE D'HISTOIRE. **May.**—A German opinion on the central attack. The Royal Army, 1674. The campaign of 1807—Eylau.* The War of 1870-71—the Siege of Paris.† The War of 1870-71—the 1st Army of the Loire.†

SPECTATEUR MILITAIRE. **May 1st.**—A quartermaster-general of Napoleon in the East.† The French military mission to Peru.† Infantry and artillery. English field artillery.§ Black troops. Military command and the civil power in democracy.† **May 15th.**—A quartermaster-general of Napoleon in the East.† The French military mission to Peru.† The African soldier.* Military command and the civil power in a democracy.†

REVUE MILITAIRE GÉNÉRALE. **May.**—Napoleon's Prussian foes. Winter manœuvres in the Alps. Combat outposts. From Coulmiers to Loigny.§

REVUE DE CAVALERIE. **April.**—Cavalry corps. Cavalry fire and cavalry under fire. The cavalry at Rezonville.§ Troopers.

REVUE D'INFANTÉRIE. **May.**—The education of the infantry soldier.† The infantryman in the field—Austro-Hungary. Intellectual and moral training of the section leader.†

REVUE D'ARTILLERIE. **May.**—Gunnery schools. Physical training in batteries. Concentric fire in coast batteries. Modern ideas in artillery of the past.*

*—to be continued.

†—continued.

§—concluded.

GERMANY.

MILITÄR WOCHENBLATT. No. 61. May 2nd.—Mexico.† The intervention of the South American States. The Roumanian operations in the Balkan War of 1913. No. 62.—The Russian infantry manual.† From Mukden to Portsmouth.† The horse-material for our cavalry. No. 63.—From Mukden to Portsmouth.† The "de Lange" signal system. No. 64.—Two new French manuals. The French manoeuvres of 1913. No. 65.—The French Parliament and the three years system of service. Health in the Army. "It depends." No. 66.—The Russian infantry manual. Ulster and the English Officer Corps. Mexico.† No. 67.—Reconnaissance by airship and aeroplane. Dog machine-gun draught in Belgium. No. 68.—The decisive battle. Increased length of eligibility for service among reserve officers. The Russian cavalry as now reorganized. No. 69.—Mexico.† The French expedition to Mexico. No. 70.—Promotions, etc. No. 71.—The latest from the Turkish Army. Gymnastics and fencing in the Russian Army. No. 72.—Russia and Finland. The delaying action. No. 73.—The distribution of the active Turkish Army in 1914. From Mukden to Portsmouth.† In view of a fresh Balkan War. No. 74.—The capture of Taza in Mexico by the French. From Mukden to Portsmouth.† The clash of arms.

JAHRBÜCHER FÜR DIE DEUTSCHE ARMEE UND MARINE. May.—The new French tactics. The value of Blücher in the coalition against Napoleon in 1814. The present state of military aviation. Russian views on war and leading in battle. The 20 c.m. guns for Antwerp.

ARTILLERISTISCHE MONATSHEFTE. May.—Tables of ballistics. The field artillery practice regulations of January 11th, 1914. The employment of artillery from the time of Frederick the Great to the War of 1866. How should field batteries conduct their fire? Should the production of armaments be a State industry? A visit to the battlefields of Weissenburg and Wörth after 44 years.

SWITZERLAND.

REVUE MILITAIRE SUISSE. May.—The Battle of Sempach. The staff service of a division. Visual signalling. Voluntary service.

*—to be continued.

†—continued.

§—concluded.

Royal United Service Institution.

EIGHTY-THIRD ANNIVERSARY MEETING.

TUESDAY, 3rd MARCH, 1914.

The Journal OF THE **Royal United Service Institution.**

VOL. LVII. 1913-1914.

APPENDIX.

THE EIGHTY-THIRD ANNIVERSARY MEETING.

MARCH 3rd, 1914.

Royal United Service Institution.

EIGHTY-THIRD ANNIVERSARY MEETING.

TUESDAY, 3RD MARCH, 1914.

COLONEL SIR LONSDALE HALE (Chairman of the Council) presiding.

THE CHAIRMAN: The Secretary will read the notice convening the meeting.

THE SECRETARY (Lieut.-Colonel Sir Arthur Leetham) read the notice.

ANNUAL REPORT FOR 1913.

COUNCIL.

The Council regret to have to report the death of Field-Marshal Viscount Wolseley, K.P., G.C.B., O.M., G.C.M.G., a Vice-President of the Institution. Field-Marshal Sir H. E. Wood, V.C., G.C.B., G.C.M.G., was appointed a Vice-President vice the late Viscount Wolseley.

Admiral of the Fleet Sir A. D. Fanshawe, G.C.B., G.C.V.O., was elected a Member of the Council, vice Admiral Sir George Le C. Egerton, K.C.B., having been appointed to the command at Plymouth (Bye-Laws, Chap. 4, Section 9).

CHIEF EXECUTIVE OFFICER.

The Council have to record with great satisfaction that His Majesty has been pleased to bestow on the Secretary and Chief Executive Officer of the Institution, Lieut.-Colonel A. Leetham, the honour of Knighthood in recognition of the services he has rendered while holding that office.

MEMBERS.

The Council have the honour to report that during the past year, 173 Officers joined the Institution against 232 in 1912. There were 165 withdrawals and 82 deaths (of which 26 were Life Members) making a decrease of 74 on the year. It is much to be regretted that the Membership should show such a falling off, and it is hoped that Members will assist in introducing new Members in large numbers during the coming year.

The details of members joining were :—

Regular Army	112
Royal Navy	27
Territorial Force (including Yeomanry) ...	15
Special Reserve	7
Indian and Colonial Volunteers	7
Royal Marines	3
Royal Naval Reserve	2
	<hr/>
	173

The total number of members on January 1st, 1914, was 5,580.

FINANCE.

It will be seen from the accounts that the year's working has given a debit balance of £399 1s. 8d. The decrease in the revenue of the Institution is caused by the falling off in the number of new members, both Annual and Life. The increase in the expenditure is mainly caused by the cost of redecorating the interior of the Institution Building in 1912. At the end of 1912 there was a balance due to the bank of £2,406, and it was decided to realize a sufficient sum by the sale of Investments to prevent this debt.

It was found necessary in order to ensure the safety of the Buildings and their contents to re-wire the electric lighting in the Banqueting Hall and in certain parts of the Institution Building. The work was executed by His Majesty's Office of Works, but the account has not yet been received.

Attention is drawn to extra Annual Subscriptions ; this fund was commenced in 1894, when an appeal was addressed to every member, which resulted in an increased annual revenue of some £500, since when it has been decreasing annually, and is now only £113. The Council hope that this fund will not be allowed to lapse, as owing to increased taxation and rating it is not easy to make the funds of the Institution meet the expenditure.

The invested funds now amount to £12,141, which is the valuation of such investments on December 31st, 1913.

MUSEUM.

During the past year, there have been added 147 new Exhibits, all of which have been catalogued and duly recorded in the JOURNAL, and have been placed on exhibition in the Museum. The Council desire to express their thanks to the several Donors for these valuable additions. The number of persons who passed through the turnstile amounted to 24,580, which includes a large number of Soldiers and Sailors, Boy Scouts, etc., who were granted free admission. This total does not include a very considerable number of Visitors who were introduced by Members personally. During the year 75 Schools were granted free admission to the Museum, and attendants were especially detailed to conduct these parties and explain the principal Exhibits. The result shows an increase of Visitors compared with the previous year, and the receipts for admission have amounted to £483. The amount standing to the credit of the Museum Purchase Fund is £24, and it is hoped that this Fund will continue to receive substantial support from the Members of the Institution, especially those who are interested in the Museum.

During the past year 27 pairs of Regimental and other Colours have been restored for various Regiments and Public Bodies.

THE WATERLOO AND WELLINGTON EXHIBITION.

The Council desire to draw special attention to this Exhibition which is to be held in 1915, and hope that Members of the Institution and others possessing Relics and Articles of interest under this category will kindly lend them when the time comes.

LIBRARY.

The number of books added to the Library during the past year was 382, bringing the total number of volumes up to 31,425. A catalogued list of the accessions can be obtained on application to the Librarian.

The number of Members subscribing to the Lending Library during the past year was 293 as against 285 in the previous year. The number of books issued on loan to Members was 3,192.

The Catalogue of Naval Manuscripts prepared by Captain Garbett has been completed and published.

Colonel Sir Lonsdale Hale has been through, identified and catalogued all the Military Manuscripts in possession of the Royal United Service Institution. A Calendar of them is in course of publication, and will shortly

be available. The Naval and Military Manuscripts have all been arranged in volumes, and numbered and shelved in the annexe prepared for them.

The new Library Subject Index Catalogue has been completed.

Donations of books and maps have been received from our own and various foreign Governments, as well as from private individuals, and the thanks of the Council have been conveyed for these donations.

JOURNAL.

Colonel H. C. Wyly, C.B., succeeded Major H. H. Wade, late R.A., as Editor in September, 1913.

The Council have had under consideration the question of returning to the old form of issue of the JOURNAL, viz., as a quarterly publication, and have decided that this shall be carried into effect. The present monthly issue will be discontinued after the June issue.

Papers on the following subjects were read and discussed, and the majority have appeared in the JOURNAL. To the authors are due the best thanks of the Institution.

Captain H. O. Mance, D.S.O., R.E. "The Railway Systems of West Africa."

Major C. L. Graham, 4th (Queen's Own) Hussars. "The Organization and Training of Cavalry (Home Service)."

Colonel J. D. Fullerton, late Royal Engineers. "Aeronautical Progress."

Colonel C. B. Mayne, late R.E. "The Balkan War and some of its Lessons."

Captain A. Trapmann, The London Regiment. "The Greek Operations in Epirus."

Professor Spenser Wilkinson. "Benedek in 1866."

Captain J. Atkinson, A.S.C., T.F. "A National Cadet Army."

Frank Fox, Esq. "Observations of a War Correspondent with the Bulgarian Army."

Commander Carlyon Bellairs, R.N. "Secrecy and Discussion during Peace as aids to preparation for War."

Norman Angell, Esq. "The Place of Military Force in Modern Statecraft."

Colonel H. S. Massy, C.B., F.R.G.S. "The Seaplane and its Development."

Captain C. T. Atkinson, Oxford University O.T.C. "The Foreign Element in the British Army, 1793-1815."

H. A. Gwynne, Esq. (Editor "Morning Post"). "The Press in War."

Major Stewart L. Murray, late Gordon Highlanders. "The Internal Condition of Great Britain during a great War."

Vaughan Cornish, Esq., D.Sc., F.R.G.S. "The Strategic Aspect of the Panama Canal."

Colonel W. G. Simpson, 24th Bn. London Regt. "The Duties of Local Authorities in War Time."

Lieutenant L. H. Hordern, R.N. "The Dominions and the Navy."

The thanks of the Institution are also due to the following Authors for Papers contributed by them: Brevet-Major C. N. Buchanan-Dunlop, R.A.; the late Lieut.-General Sir E. P. Leach, V.C., K.C.B., K.C.V.O.; Major H. D. Farquharson, R.M.L.I.; Lieut.-Colonel A. C. Yate, late 129th (D.C.O.) Baluchis; Lieut. R. H. Beadon, A.S.C.; Colonel H. C. Wylly, C.B.; Commander R. H. Keate, R.N.; Colonel Sir Lonsdale A. Hale, R.E.; Commander K. G. B. Dewar, R.N.; Rev. Alexander Craufurd; Colonel J. G. Hicks, V.D., late Percy Artillery; Colonel H. C. C. D. Simpson, C.M.G., late R.A.; Commander E. V. F. R. Dugmore, R.N.; Captain H. J. G. Garbett, R.N.; Captain R. D. Barbor, A.S.C.; Captain H. M. Johnstone, late R.E.; J. F. Bradford, Esq.; W. E. Bradbury, Esq.; Field-Marshal Earl Roberts, V.C., K.G., &c.; "A Regimental Colonel, C.L.B."; Major-General H. H. Wilson, C.B., D.S.O.; "N"; Captain J. F. C. Fuller, 2nd Oxfordshire & Buckinghamshire Light Infantry; Colonel Sir Arthur Mackworth, Bart., C.B., late R.E.; Miss G. Fitzmaurice; Colonel W. R. James, R.A.; Colonel H. C. L. Holden, C.B., F.R.S., late R.A.; Miss E. G. Hall; Colonel W. Baker Brown, late R.E.; Lieut. C. H. N. James, R.N.; Major E. U. Bradbridge, 4th Bn. Lancashire Fusiliers; "Footslogger"; Major W. R. Walker, 62nd Punjabis; Major A. W. H. Lees, (late) 3rd (Reserve) Bn. S. Wales Borderers; Major F. K. Windeatt, 5th Bn. Devon Regt.; P. Smiles, Esq., R.N.

The thanks of the Institution are also due to the following authors of articles in foreign publications, translations of which appeared in the JOURNAL:—Major K. Haushofer, Bayarian Army; Captain Señor Don Augusto Mirandi; Lieutenant D. Manuel Andijur; Captain A. de Tarlé

Romeo Bernotti ; Field-Marshal Baron Von der Goltz ; Commander Victor Blue, U. S. Navy ; Captain Schaefer, Austrian Army ; Commander T. Okuda, I. J. Navy.

The Institution is indebted to the Lords Commissioners of the Admiralty, to the Army Council, the Secretaries of State for the Colonies and for India, and to the Civil Service Commissioners, for translations, communiqués, and copies of various works issued by their respective departments.

The exchange of the JOURNAL with Foreign Governments, and with many Societies in this and other countries, has been continued.

ROYAL UNITED SERVICE INSTITUTION GOLD MEDAL AND
TRENCH-GASCOIGNE PRIZES.

The subject of the Military Essay for the Gold Medal and Trench-Gascoigne Prizes was :—

“ How can Moral Qualities best be Developed during the Preparation of the Officer and the Man for the Duties each will carry out in War ? ”

20 Essays in all were submitted.

The names of the Referees are as follows :—

Field-Marshal Lord Methuen, G.C.B., G.C.V.O., C.M.G.

Major-General Sir H. S. Rawlinson, Bart., C.V.O., C.B.

Major-General Sir W. R. Robertson, K.C.V.O., C.B., D.S.O.

and their decision will be made known at the Anniversary Meeting.

The Council desire to record the thanks of the Institution to these Officers for so kindly undertaking this difficult and laborious task.

MEMBERS OF THE COUNCIL.

The following Members of the Council retire, having completed three years' service :—

Admiral-of-the-Fleet Sir G. H. U. Noel, G.C.B., K.C.M.G.

Rear-Admiral R. G. O. Tupper, C.V.O.

Lieut.-General Sir R. S. S. Baden-Powell, K.C.B., K.C.V.O.

Lieut.-General H. D. Hutchinson, C.S.I.

Brigadier-General F. I. Maxse, C.V.O., C.B., D.S.O.

Major-General H. H. Wilson, C.B., D.S.O.

Colonel F. C. Romer, C.B., C.M.G.

Lieut.-Colonel Hon. T. F. Fremantle, T.D.

The following are the names of the candidates nominated for the vacancies :—

Royal Navy (2 vacancies).

Rear-Admiral R. G. O. Tupper, C.V.O.

Captain H. W. Richmond, R.N., Assistant Director of Operations, Admiralty War Staff.

Rear-Admiral A. C. Leveson, C.B.

Regular Army (4 vacancies).

Major-General M. H. Saward, Colonel Commandant, Royal Artillery.

Lieut.-General Sir R. S. S. Baden-Powell, K.C.B., K.C.V.O.

Lieut.-General H. D. Hutchinson, C.S.I.

Brigadier-General F. I. Maxse, C.V.O., C.B., D.S.O., Commanding 1st (Guards) Infantry Brigade.

Major-General H. H. Wilson, C.B., D.S.O., Director of Operations, War Office.

Colonel Sir E. W. D. Ward, Bart., K.C.B., K.C.V.O.

Lieut.-General Sir A. E. Codrington, K.C.V.O., C.B.

Special Reserve (1 vacancy).

Colonel F. C. Romer, C.B., C.M.G., 4th Bn. Lancashire Fusiliers.

Colonel C. H. Colvin, D.S.O., 3rd Bn. Essex Regt.

Territorial Force (1 vacancy).

Lieut.-Colonel Hon. T. F. Fremantle, T.D., Buckinghamshire Bn.

Lieut.-Colonel R. Shoolbred, T.D., Commanding 16th Bn. London Regt. (Queen's Westminster).

BY ORDER,

A. LEETHAM, Lieut.-Colonel,

*Secretary, and Chief
Executive Officer.*

Whitehall,

February 3rd, 1914.

DR.

BALANCE SHEET, 31st DECEMBER, 1913.

CR.

	1913.			1913.	
	£	s. d.		£	s. d.
To Excess of Assets over Liabilities	By Outlay on New Building ...	...	...
" Sundry Creditors	" Furniture, Museum Cases, etc., as at December 31st, 1912 ...	387	18 0
" Museum Purchase Fund	" Additions during the year ...	34	14 0
" Leasehold Redemption Fund	" Library Books, Pictures, Maps, etc., as valued for Insurance ...	422	12 0
" Balance due to Bank	" Museum Contents, as valued for Insurance (excluding Loan Collection £18,760) ...	10,222	0 0
			" Investments at Market Prices, December 31st, 1913—	21,260	0 0
			" £2,421 18s. 8d. India 3½ p.c. ...	2,058	12 10
			" £3,044 17s. 11d. India 3 p.c. ...	2,192	6 6
			" £1,111 8s. 6d. Nottingham Corporation 3 p.c. ...	1,147	14 3
			" £1,181 10s. Oxford Corporation 3 p.c. ...	821	11 5
			" £5,000 Hull and Barnsley Railway Ordinary Stock, valued 31st December, 1897 (Trench-Gascoigne Gift) ...	3,360	0 0
			" £473 17s. 9d. Canada 3½ p.c. (Hookier Bequest) ...	426	10 0
			" Leasehold Redemption Fund, Investment Account, at Market Price, December 31st, 1913—	10,098	15 0
			" £1,272 11s. 9d. Ceylon 3 p.c. ...	1,018	1 2
			" £1,368 0s. 0d. London County Council 3 p.c. ...	1,026	0 0
			" Sundry Debtors ...	2,044	1 2
			" Cash in hand ...	516	9 1
				1	11 0
				£67,655	1 11

NOTE.—There is an amount owing to H.M. Office of Works for re-writing of Banqueting Hall and portions of the Institution Building in 1913; the account has not yet been presented.

We have examined the above Balance Sheet and Revenue Accounts with the Books and Vouchers and certify the same to be correct. All our requirements as Auditors have been complied with. We have verified the Cash Balance and Investments set out in the Balance Sheet, and subject to the Leasehold Redemption Fund being sufficient to provide for the depreciation of the Lease, we are of opinion that the Balance Sheet is properly drawn up and correctly shows the position of the Royal United Service Institution on the 31st December, 1913.

WILDE AND FERGUSON DAVIE, Chartered Accountants,
Auditors.

61, Fife Street, E.C., January 23rd, 1914.

REVENUE ACCOUNT FOR THE YEAR ENDING 31st DECEMBER, 1918.

CR.

DR.

1912.		1913.		1912.		1913.	
£	s. d.	£	s. d.	£	s. d.	£	s. d.
1,456 5 4	To Journal Printing	1,451 8 8
549 17 7	Postage	536 4 7
73 10 0	Literary Services	89 5 3
305 6 1	Library, Purchase and Binding of Books	384 9 4	2,066 18 6
74 0 1	Periodicals and Newspapers	72 9 4
140 3 3	Museum Sundries	137 5 7
1,074 6 8	Salaries	1,083 11 8
870 19 6	Wages	873 11 8
73 3 8	Attendants' Clothing	80 17 6
50 0 0	Pensions and Gratuities	45 0 0
580 0 0	Ground Rent	580 0 0
77 9 0	Water Rate	77 9 0
561 9 2	Rates	890 12 6
68 5 0	Taxes	63 5 0
5 19 6	Insurance Stamps	1,316 4 6
82 4 11	Insurance	9 12 7
71 6 6	Fuel	85 16 7
97 0 2	Lighting	100 17 11
185 14 5	Repairs (including Painting inside of Institution Building)	471 3 7
200 6 8	House Expenses and Sundries	208 3 6
72 18 6	Advertising	45 8 6
54 13 0	Short-hand Notes at Lectures	65 14 0
26 14 4	Lecture Expenses	12 3 0
26 5 0	Audit and Accountancy
54 17 9	Postage of Letters, Stamps, etc.	60 19 6
142 8 11	Printing and Stationery	231 2 6
11 10 0	Telephone	13 0 0
8 5 0	Gold Medal	8 5 0
40 11 4	Bank Interest
27,125 10 4		27,511 13 7		55 19 3	Balance carried to Balance Sheet
27,125 10 4		27,511 13 7		55 19 3	Balance carried to Balance Sheet
27,125 10 4		27,511 13 7		55 19 3	Balance carried to Balance Sheet
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27,125 10 4		27,511 13 7		55 19 3	Balance carried to Balance Sheet
27,125 10 4		27,511 13 7		55 19 3	Balance carried to Balance Sheet		

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31ST DECEMBER, 1913.

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We hereby certify the above Account to be correct,

11, Pore Street, E.C.,
23rd January, 1914.

**WILDE AND FERGUSON DAVIE, Chartered Accountants,
Auditors.**

TRENCH-GASCOIGNE PRIZE FUND.

OK.

318T DECEMBER, 1913.

DR.

1913.		£ s. d.
Jan. 1.	To Balance, 31st December, 1912	33 6 1
May 1.	" 6 mths. Div., £1,862 10s. North Brit. Ry. Deb. Stock	26 6 4
Nov. 12.	" " " "	26 6 4
		<hr/>
		£85 18 9

We hereby certify the above Account to be correct.

111, Fore Street, E.C.4.,
23rd January, 1914.

**WILDE AND FERGUSON DAVIE, Chartered Accountants,
Auditors.**

TABULAR ANALYSIS OF THE STATE OF THE INSTITUTION.

[A full analysis for each year from 1831 will be found in the Report for 1897.]

Year 1st Jan. to 31st Dec.	Annual Subs. received.	En- trance Fees.	Receipts (from all sources).	Life Subs. re- ceived.	Invested Funds at Cost.	Invested in the pur- chase of Books, &c.	No. of Vols. in Library.	No. of Members on the 31st Dec.
1831	£ 654	£ ...	£ 654	£ 1,194	£ ...	£ ...	...	1,437
1841	1,450	...	1,643	186	6,000	243	5,850	4,243
1851	1,136	131	1,292	66	666	34	10,150	3,188
1861	2,122	305	2,899	266	2,846	99	11,812	3,689
1871	2,455	237	3,677	538	7,748	202	15,501	3,922
1881	2,893	238	4,967	645	13,670	240	19,920	4,577
1891	2,610	189	5,004	454	21,942	153	23,845	4,204
1892	2,930	605	9,429	1,572	24,805	142	24,099	4,657
1893	2,929	468	8,334	1,095	22,172	157	24,471	4,961
1894	3,598	215	6,625	606	12,840	200	24,680	5,016
1895	3,760	353	7,117	921	8,761	204	25,947	5,198
1896	3,802	351	7,225	876	8,761	245	26,161	5,347
1897	3,910	401	10,902†	959	12,386	381	26,381	5,550
1898	3,964	265	6,935	493	12,386	376	26,592	5,620
1899	3,834	167	6,646	251	12,841	430	27,142	5,583
1900	3,879	174	7,170*	235	13,791	264	27,492	5,491
1901	3,816	197	6,955	358	14,192	289	27,792	5,443
1902	3,806	188	7,063	449	14,491	309	28,167	5,427
1903	3,743	178	6,597	409	15,459	299	28,387	5,361
1904	3,684	184	6,707	448	15,459	301	28,636	5,313
1905	3,713	253	7,756	611	15,459	324	28,851	5,369
1906	3,714	226	6,803	519	16,488	204	29,114	5,404
1907	3,733	211	6,615	573	16,549	256	29,427	5,408
1908	3,741	220	7,205	502	16,612	213	29,667	5,420
1909	3,806	312	7,354	789	16,676	167	29,917	5,535
1910	3,893	269	7,407	573	16,742	326	30,182	5,611
1911	3,988	254	7,319	372	16,810	374	30,624	5,649
1912	4,018	225	7,125	330	16,881	305	31,043	5,654
1913	3,928	159	7,113	266	**12,141	384	31,425	5,580

† A donation of stock, valued at £2,323 and £1,301, realized by the letting of seats to view Her Majesty's Diamond Jubilee Procession, are included in this amount.

* This amount includes a donation of £500.

** Value on December 31st, 1913.

The CHAIRMAN: My Lords and Gentlemen, I rise to propose: "That the Report and Accounts, as circulated, be taken as read and adopted."

In proposing that resolution I cannot refrain from availing myself of the pleasure of calling your attention to the third paragraph of the Report, in which the Council say: "The Council have to record with great satisfaction that His Majesty has been pleased to bestow on the Secretary and Chief Executive Officer of the Institution, Lieut.-Colonel A. Leetham, the honour of Knighthood, in recognition of the services he has rendered while holding that office." Though the services he has rendered while holding that office may be known to many of you, they are not all connected with the Institution only. Since Colonel Leetham has been here he has converted our Museum into a means of conveying education to thousands of children yearly, both boys and girls—information as to the deeds of their ancestors. The children are received in the Institution; the attendants have been properly trained; they take them round and show them the different exhibits, and speak of the events with which they are connected. It is one of the most interesting things that can be seen to witness a school of children going round the Museum, and the eager delight with which they follow the attendants about. I am sure, gentlemen, you will join the Council in expressing your great satisfaction at the high honour that has been bestowed upon Lieut.-Colonel Leetham. (Cheers.)

Admiral of the Fleet Sir A. D. FANSHAWE, G.C.B., G.C.V.O. (Vice-Chairman of the Council): Sir Lonsdale Hale, my Lords and Gentlemen: I beg to second this resolution, and in doing so I wish first of all to say how very much I am sure we all appreciate the great work that has been done by our Chairman during this past year in connection with the very laborious work of dealing with historical naval and other papers. (Hear, hear.) I wish very warmly to endorse everything our Chairman has so eloquently put forward in regard to the honour which His Majesty has thought fit to bestow upon our Secretary, Sir Arthur Leetham. (Cheers.) I beg to second the resolution.

The CHAIRMAN: I will now ask the Chairman of the Finance Committee, Colonel Sir William Hill, to offer any remarks he desires to make in regard to the finances.

Colonel Sir WILLIAM A. HILL, K.C.B. (Chairman of the Finance Committee): Sir Lonsdale Hale, my Lords and Gentlemen: The accounts which have been laid before you appear in a somewhat different form from that in which they have been presented to you in previous years. I now propose to offer you some explanation of the different items in regard to the increases and decreases. In the first place, there is a decrease in the expense of printing the JOURNAL of £49. The further decrease in postage of £23 is caused by fewer Members belonging to the Institution, and therefore fewer Journals having to be sent by post. There is an increase of £79 in the

library, purchase and binding of books ; but this includes additional shelving, the manuscript catalogue and its printing, and the library slip printing. It may not appear very clear to you what the item "museum sundries" is, but it includes the rigging of various models, repairs to the models, and also the purchase of exhibits. Rates have increased by £29, and they appear very likely to continue to rise. Under the head of "Repairs, £471," there is an increase of £266 on last year, which was caused by the necessity of repainting the Institution, and in some instances very large repairs. The approximate cost was £400. The house expenses are larger owing to a double cleaning having to be undergone when the workmen left after the painting had been carried out. Shorthand notes show an increase of £12. The amount paid for shorthand notes depends upon the length of the lectures and the amount of the discussion that takes place afterwards. The diminution of £14 in lecture expenses is owing to the cessation of the military lectures. Turning to the revenue side of the account, the principal items calling for notice are the increase in the sale of the JOURNAL of £11, and a very large increase in advertisements of £121. That is very satisfactory indeed. The admissions to the museum increased by £27, and the general receipts by £8. I may say that the receipts from admissions to the museum appear to be very satisfactorily on the increase during this year. There is, however, a very serious falling off in the following items : Members' subscriptions, £77 ; extra subscriptions, £16 ; entrance fees, £66, and in life subscriptions, £104—a total of £273. The Council hope that every effort will be made by Members of the Institution to induce their friends in both Services to join. Although the amount of £107, rebate of income tax on investments, has been treated as revenue, it must be remembered that that item has to be spread over a period of three years, and in the future the greatest amount that we can possibly expect to get from that source is a sum of £30. I should like in this connection to record our appreciation of the work done by our most efficient Assistant Secretary, Mr. Pinhey, as it was largely owing to his exertions in seconding the efforts of our indefatigable Secretary and Curator that the claim for the rebate of income tax was brought to a successful issue. We now come to the Balance Sheet. You will notice that the excess of Assets over Liabilities has increased by £28,580, having risen from £36,064 to £64,644, as for the first time the amount of the contents of the Library and the Museum as valued for insurance have been brought into account. I need hardly say that the value of the contents of the Library and Museum are far in excess of the amount at which they are valued in the Balance Sheet as an asset. With regard to our investments, we no longer hold the Canada 3 per cents., £450, Consols, £1,330, and our holding in Nottingham Corporation 3 per cents. is reduced by £605. These sums have been required to pay for the expenses incurred in bringing the arrangements of the Institution buildings up to modern requirements and those of Government departments. We have written off the Journal Index, £96 16s. ; Library Catalogue, £464 16s. ; Museum Catalogue, £57 12s. ; and the Waterloo Pamphlets, £27 5s., a sum of £647 11s., and these are

items that will not appear in the Accounts in future. There is one further point which no doubt you will think requires some explanation. The Leasehold Redemption Fund, which in 1912 was valued at £2,389, is this year shown as being of the value of £2,044, although the interest for the year is added to it. This is accounted for by the severe fall in all securities, in which those two items have shared. Since the Balance Sheet has been made up, however, there has been a large rise in those securities, and our investments are now several hundred pounds greater in amount than they were at the time the Balance Sheet was compiled in December, 1913.

The CHAIRMAN : Does any Member wish to ask the Chairman of the Finance Committee any question, or to make any remark on the finances ?

If not, I will ask Major-General Dickson to speak with regard to the JOURNAL and the Library.

Major-General E. T. DICKSON : The past year has been rather an eventful one as regards the work of the Library. For the last five years there has been a great deal of abnormal work done in connection with this branch of the Institute. The Library staff, especially Major Wyly, the Librarian, Mr. Harper, and the Assistant Library Clerk, Mr. Holland, have been working overtime for five years. This work during the past year has culminated in the completion of the Library Subject Index Catalogue. The Librarian assures me that he worked at it for six hours a day for nine months. The abnormal work is now finished, and I am glad to be able to tell you that the Library is in first-rate order. Besides this, during the past year Captain Garbett has finished the Catalogue of the Naval Manuscripts, and our Chairman in his spare time, as you have heard from the Vice-Chairman, undertook to compile a most valuable Calendar of the Military Manuscripts. (Hear, hear.) I would invite the Members to inspect these manuscripts. You will have to get the Librarian to open the Annex in which they are in the Writing Room ; they are very conveniently arranged there, and I think they are worthy of your inspection. I would also ask you to inspect the new Subject Index Catalogue in the Library, which I think you will agree with me may be classed as a *magnum opus*. With regard to the JOURNAL, after long consideration the Council have decided, as you will see in the Report, to discontinue the monthly issue and go back to a quarterly issue. I may say you will find the form of the quarterly issue more convenient in size and more attractive in appearance, and I hope by the arrangements that the Chairman of the Finance Committee will be able to make, you will find in the future that the subject matter will be of a very high-class indeed.

The CHAIRMAN : Does any Member wish to ask Major-General Dickson any questions ?

If not, I will call upon Comander Caborne to speak with regard to the Museum.

Commander W. F. CABORNE, C.B., R.N.R. (Chairman of the Museum and General Purposes Committee): Sir Lonsdale Hale, my Lords and Gentlemen: The Museum during the past year, as in former years, has made considerable historic progress, and its excellent condition is patent to all those who visit it. Among the more important additions, I should like to mention the saddlery of the late Field-Marshal Viscount Wolsley, presented by his widow, the Dowager Viscountess Wolsley, and I am sure that it will be of great interest to you to know that the same lady has very kindly consented to place on loan with us all the decorations and medals of the very distinguished soldier, her late husband, who, to our great regret, has passed away since our late Annual Meeting.

The next exhibit to which I wish to allude, is the model of the old Palace of Whitehall, as it existed in the days of Charles I., I believe the only model of the same description in existence—the very interesting, valuable, and generous gift of Sir Arthur Leatham. (Cheers.)

I would also call attention to the figure-head which you will all have seen at the Museum entrance. It is that of the "Orion," a 91-gun screw line-of-battle-ship, built in 1854, which formed one of the units of the Baltic Fleet, under the command of Rear-Admiral Dundas, in 1855, and was the namesake and successor of the ship that performed notable service in Lord Nelson's division at the Battle of Trafalgar.

The question of having another figure-head was mooted, but the Council vetoed the proposal, as it was found that a second one would obstruct the doorway to the Museum.

While upon this subject, it will be within your recollection that some time ago there was certain correspondence in the *Times* with regard to the figure-heads of old ships, and about that period we were offered a very large number if we would take care of them. The offer was very promptly and firmly declined, because a space almost equal to Trafalgar Square would have been required to accommodate such a number of derelicts.

I was very glad, Sir, that you alluded to the children who come to the Museum. A very large number of poor children visit it free, and the educational work carried on by this means cannot be adequately expressed in words or too highly praised. In these days, when there is such a lack of patriotism, I am sure that a visit to the Museum of the Royal United Service Institution must inculcate in the rising generation a feeling of patriotism, a feeling of loyalty to the Crown, a knowledge that there are high ideals to be sought after, and that there is something worthier to be seen than picture palaces and football matches.

Upon two or three previous occasions I have spoken about the increasing necessity that exists for further accommodation for our priceless Museum. Although at the present moment it may not be possible to do anything in the matter, the question cannot be kept too much in the forefront, as the day is coming when it will be absolutely imperative to have room for further

expansion. Under the circumstances, it is sincerely to be hoped that His Majesty's Government will see its way to assist us, particularly when Gwydyr House, next door, now in the occupation of the Board of Trade, becomes vacant.

As I announced two years ago, and is now stated in the Annual Report, the Council propose to hold a Wellington and Waterloo Exhibition next year, the principal function in connection with which will take place on the 18th of June.

The Nelson and Trafalgar Exhibition in 1905 was a very great success in every way, and brought in about £1,000 to the funds of the Institution. There is every reason to believe that the next undertaking will be equally prosperous, but it must be borne in mind that it will much depend upon the members of the Institution to make the Exhibition a success. I may add that our Secretary, Lieut.-Colonel Sir Arthur Leetham, has already received offers of loan exhibits, and is anxious to obtain more.

I now have to report that the re-wiring for the electric light in the Banqueting Hall, and also in the major portion of this building, was carried out during the summer. There was a certain amount of delay in completing the work, owing to the electricians going on strike out of sympathy with some other trade—in my opinion a very foolish proceeding.

In conclusion, I wish to express the great obligation we are under to our Secretary and Curator for the able and zealous manner in which he, as ever, has attended to the interests of the Institution. As to the members of the Staff, I am sure that we could not have a more excellent body of men, and everything goes on like clockwork. It must be extremely gratifying to my friend, Sir Arthur Leetham, to know that, while strict discipline has always been maintained, no one rejoiced more at the honour conferred upon him by our Sovereign than did the members of the Staff under his command. (Cheers.)

The CHAIRMAN: Has any member any question to ask upon the subject of the Museum?

If not, I will put the resolution: "That the Report and Accounts, as circulated, be taken as read and confirmed." The resolution was then put, and declared carried unanimously.

Colonel C. H. COLVIN, D.S.O.: I beg to move the following resolution: "That the thanks of the Meeting be accorded to the Auditors, Messrs. Wilde and Ferguson Davie, for their services, and that they be re-elected Auditors for the ensuing year at a fee of 25 guineas."

Captain K. R. WILSON (12th London Regiment): I beg to second that resolution.

The resolution was put, and declared carried unanimously.

ELECTION OF COUNCIL.

A ballot was then taken for the Election of Members to fill the vacancies on the Council, for which the undermentioned Officers had been nominated as candidates :—

ROYAL NAVY (2 VACANCIES).

Rear-Admiral R. G. O. Tupper, C.V.O.

Captain H. W. Richmond, R.N., Assistant Director of Operations,
Admiralty War Staff.

Rear-Admiral A. C. Leveson, C.B.

REGULAR ARMY (4 VACANCIES).

Major-General M. H. Saward, Colonel Commandant, Royal
Artillery.

Lieut.-General Sir R. S. S. Baden-Powell, K.C.B., K.C.V.O.

Lieut.-General H. D. Hutchinson, C.S.I.

Brigadier-General F. I. Maxse, C.V.O., C.B., D.S.O., Com-
manding 1st (Guards) Infantry Brigade.

Major-General H. H. Wilson, C.B., D.S.O., Director of Opera-
tions, War Office.

Colonel Sir E. W. D. Ward, Bart., K.C.B., K.C.V.O.

Lieut.-General S. A. E. Codrington, K.C.V.O., C.B.

SPECIAL RESERVE (1 VACANCY).

Colonel F. C. Romer, C.B., C.M.G., 4th Bn. Lancashire Fusiliers.

Colonel C. H. Colvin, D.S.O., 3rd Bn. Essex Regiment.

TERRITORIAL FORCE (1 VACANCY).

Lieut.-Colonel Hon. T. Fremantle, T.D., Buckinghamshire Bn.

Lieut.-Colonel R. Shoolbred, T.D., Commanding 16th Bn. London
Regiment (Queen's Westminster).

Major S. H. Godman, D.S.O., and Major H. Huntington acted as Scrutineers, and it was subsequently announced that the following Officers had been elected :—

ROYAL NAVY.

Captain H. W. Richmond, R.N.

Rear-Admiral A. C. Leveson, C.B.

REGULAR ARMY.

Colonel Sir E. W. D. Ward, Bart., K.C.B., D.S.O.

Lieut.-General S. A. E. Codrington, K.C.V.O., C.B.

Major-General H. H. Wilson, C.B., D.S.O.

Lieut.-General H. D. Hutchinson, C.S.I.

SPECIAL RESERVE.

Colonel C. H. Colvin, D.S.O.

TERRITORIAL FORCE.

Lieut.-Colonel FREMANTLE having intimated that he did not wish to be re-elected, accordingly Lieut.-Colonel R. Shoolbred, T.D., was elected in his place.

REPORT OF THE REFEREES ON THE 1913 MILITARY GOLD MEDAL ESSAYS.

The SECRETARY: The Military Gold Medal Essays for 1913. I have the honour to report that, on the recommendation of the Referees, Field-Marshal Lord Methuen, Major-General Sir H. S. Rawlinson, Bart., and Major-General Sir W. R. Robertson, the Council have awarded the Gold Medal and First Trench-Gascoigne prize of 30 Guineas to the writer of the Essay No. 15, bearing the motto "Leve et relius," and the Second Trench-Gascoigne prize of 20 Guineas to the writer of the Essay No. 5, bearing the motto "To scorn delights and live laborious days."

The envelopes containing the mottoes were then opened by the Chairman, who announced that the winner of the Gold Medal and the First Trench-Gascoigne Prize was Major Algernon Lawson, Royal Scots Greys, York, and the winner of the Second Trench-Gascoigne Prize was Lieutenant R. H. Beadon, Army Service Corps, Roberts Heights, Pretoria, South Africa.

Admiral of the Fleet Sir G. H. U. NOEL, G.C.B., K.C.M.G.: It is my pleasant duty to propose the following resolution: "That a vote of thanks be accorded to the Referees:—Field-Marshal Lord Methuen, G.C.B., G.C.V.O., C.M.G., Major-General Sir H. S. Rawlinson, Bart., C.V.O., C.B., Major-General Sir W. R. Robertson, K.C.V.O., C.B., D.S.O., for their valuable services in adjudicating on the Military Essays for the Gold Medal of 1913." We seniors in the Services know what an arduous duty it is, to go as referees through these Essays, and perhaps the thanks that are due are greater or less according to the number of Essays that have to be waded through. I see on this occasion that the Referees had to examine 20 Essays. I have had to do this duty on a previous occasion, but I am thankful to say there were not more than 10 or so then. I beg to propose a hearty vote of thanks to these Officers.

Admiral Sir R. N. CUSTANCE, G.C.B., K.C.M.G., C.V.O.: I have much pleasure in seconding that resolution.

The resolution was put and carried unanimously.

Field-Marshal LORD METHUEN, G.C.B., K.C.V.O., C.M.G.: Mr. Chairman and Gentlemen: It fills me with suspicion to find that the first prize has been given to a very great friend of mine, Major Lawson, and the second to an officer who happens to be at Pretoria. I own that my feeling in looking over these Essays was one of great diffidence, and it was a matter of congratulation to myself that two such past masters as my colleagues, who had both been

Commandants of the Staff College, without any hesitation made the same selection as I did myself ; we all three made the same selection. (Hear, hear.) It was rather curious that all three of us had some doubt as to the second Essay. If I may say so, it seemed to me a subject which was rather a difficult one to write an Essay upon. There was perhaps in all the twenty Essays not so much of original thought as one might have anticipated, but there was a considerable amount of plucking of Lord Haldane's feathers, because more or less every Essay I looked over quoted Lord Haldane, and when the writers had nothing more to do with his Lordship, they fell back upon the old Commandant of the Staff College, General Robertson. I thank you on behalf of my colleagues and myself for your vote of thanks.

Admiral of the Fleet Sir A. D. FANSHAWE, G.C.B., G.C.V.O. : I beg to propose the following resolution : " That a vote of thanks be accorded to the following officers who, having served three years on the Council, now retire—

Admiral of the Fleet G. H. U. Noel, G.C.B., K.C.M.G.

Rear-Admiral R. G. O. Tupper, C.V.O.

Lieut.-General Sir R. S. S. Baden-Powell, K.C.B., K.C.V.O.

Lieut.-General H. D. Hutchinson, C.S.I.

Brigadier-General F. I. Maxse, C.V.O., C.B., D.S.O.

Major-General H. H. Wilson, C.B., D.S.O.

Colonel F. C. Romer, C.B., C.M.G.

Lieut.-Colonel Hon. T. F. Fremantle, T.D. "

Surgeon-General Sir BENJAMIN FRANKLIN : I have much pleasure in seconding that resolution.

The resolution was put and declared carried unanimously.

Field-Marshal LORD METHUEN, G.C.B., G.C.V.O., C.M.G. : In moving : " That the thanks of the Institution be accorded to the Chairman, Colonel Sir Lonsdale Hale, for presiding at this meeting, and for his arduous services during the past year," said : My Lords and Gentlemen, I really do not think this duty could have fallen into the hands of one, who appreciates it more than I do myself. There has been a friendship, I might almost say a love, between Lonsdale Hale and Paul Methuen of over fifty years. It is a friendship, or a love may I call it, that has not one wrinkle upon it. I notice that there is a considerable number of wrinkles on my friend's face, and there are some on my own, but I feel perfectly certain that, as long as we live, our friendship will never see a wrinkle on it. (Hear, hear.) The only time that I did not quite appreciate what Sir Lonsdale Hale said was when, during a lecture, he told me in one of his confidences that he always found his eyes fixed upon the stupidest man in the room ; and I regret to say that at one of his lectures, when I was on the Council, he never took his eyes off me from its beginning to the end. (Laughter.) The only time I felt any consternation in regard to him was when he had drummed into

TERRITORIAL FORCE.

Lieut.-Colonel FREMANTLE having intimated that he did not wish to be re-elected, accordingly Lieut.-Colonel R. Shoolbred, T.D., was elected in his place.

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Admiral Sir R. N. CUSTANCE, G.C.B., K.C.M.G., C.V.O.: I have much pleasure in seconding that resolution.

The resolution was put and carried unanimously.

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Commandants of the Staff College, without any hesitation made the same selection as I did myself ; we all three made the same selection. (Hear, hear.) It was rather curious that all three of us had some doubt as to the second Essay. If I may say so, it seemed to me a subject which was rather a difficult one to write an Essay upon. There was perhaps in all the twenty Essays not so much of original thought as one might have anticipated, but there was a considerable amount of plucking of Lord Haldane's feathers, because more or less every Essay I looked over quoted Lord Haldane, and when the writers had nothing more to do with his Lordship, they fell back upon the old Commandant of the Staff College, General Robertson. I thank you on behalf of my colleagues and myself for your vote of thanks.

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Rear-Admiral R. G. O. Tupper, C.V.O.

Lieut.-General Sir R. S. S. Baden-Powell, K.C.B., K.C.V.O.

Lieut.-General H. D. Hutchinson, C.S.I.

Brigadier-General F. I. Maxse, C.V.O., C.B., D.S.O.

Major-General H. H. Wilson, C.B., D.S.O.

Colonel F. C. Romer, C.B., C.M.G.

Lieut.-Colonel Hon. T. F. Fremantle, T.D. "

Surgeon-General Sir BENJAMIN FRANKLIN : I have much pleasure in seconding that resolution.

The resolution was put and declared carried unanimously.

Field-Marshal LORD METHUEN, G.C.B., G.C.V.O., C.M.G. : In moving : " That the thanks of the Institution be accorded to the Chairman, Colonel Sir Lonsdale Hale, for presiding at this meeting, and for his arduous services during the past year," said : My Lords and Gentlemen, I really do not think this duty could have fallen into the hands of one, who appreciates it more than I do myself. There has been a friendship, I might almost say a love, between Lonsdale Hale and Paul Methuen of over fifty years. It is a friendship, or a love may I call it, that has not one wrinkle upon it. I notice that there is a considerable number of wrinkles on my friend's face, and there are some on my own, but I feel perfectly certain that, as long as we live, our friendship will never see a wrinkle on it. (Hear, hear.) The only time that I did not quite appreciate what Sir Lonsdale Hale said was when, during a lecture, he told me in one of his confidences that he always found his eyes fixed upon the stupidest man in the room ; and I regret to say that at one of his lectures, when I was on the Council, he never took his eyes off me from its beginning to the end. (Laughter.) The only time I felt any consternation in regard to him was when he had drummed into

our heads that our Bible was the 1870 War. He took me off with him to the battlefields round Paris, and the place he seemed to know best was a cabaret where he said the best omelette and the best cup of coffee he knew of anywhere could be obtained. Time went on, and one day he got up and asked us to wash out entirely the 1870 War, as he had been reading from Von Hoenig and other critics regarding that war, and he found that what he had said was not always true. I have not the slightest doubt that if he and I had been younger he would have conveyed me off to the battlefields in Manchuria, and under that large mound of rock he would have found as much gold as he found in the 1870 War. But years have gone on, and Lonsdale Hale is no more able to go round the battlefields as he did of old. May I say, in conclusion, that I do not think the British Army owes more, if as much, to any one officer than it does to Hale. He has made enthusiasts of us, myself among the number. He took me up when I was young, and has helped me through many difficulties. We have had our ups and downs; I have had my downs, and Lonsdale Hale has once or twice perhaps rendered himself open to criticism; I, at any rate, have rendered myself open to many criticisms; but all I can say is that two stauncher friends, when we were down, there never were than Lonsdale Hale and Paul Methuen. (Cheers.)

Major-General H. H. WILSON, C.B., D.S.O.: I have much pleasure in seconding that resolution.

The resolution was carried by acclamation.

The CHAIRMAN: Gentlemen, I have to thank my old friend, Lord Methuen, for the very kind words he has used, and you for the way you have received them. So far as I know this is the first time that the military man, who is Chairman, has not been of General's rank, and I am glad to believe, as I am told, that the office has not suffered in the hands of a common Colonel.

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